TECHNOLOGY DEPT.

APR 23 1942
DETROIT

TELEPHONE ENGINEER

and Management

SPRING CONSTRUCTION NUMBER

APRIL 15, 1942

Specification

CABLE SPLICING SUPPLIES

Examples

OF THE "LITTLE THINGS" IN

LEICH'S

LINE OF MATERIALS

Cable splicer's supplies are typical of the hundreds of items of a specialized nature employed in telephone maintenance and repair. The Leich organization stands ready to supply you with all essential maintenance materials—as well as complete equipment and construction products for specific war jobs. Whatever your requirements, the Leich symbol is your assurance of service, quality and complete satisfaction.

LEICH SERVICE

LEICH SALES CORPORATION

427 WEST RANDOLPH STREET • CHICAGO, ILLINOIS

YOUR PART IN KEEPING THE AMERICAN WAR MA

KEEP VITAL EQUIPMENT

At the Peak

OF OPERATING EFFICIENCY

You Can Rely On

KELLOGG LINE SUPPLY SERVICE

In the Nation's all-out drive to win the war, your company has a vital part to play. It is to maintain telephone service at the highest possible level of efficiency so that the factories, the farms and the country's man-power may produce at fullest capacity.

This means getting all essential telephone repair and spring reconstruction work under way at the earliest possible moment, using materials that are best qualified for the job.

It's a big responsibility, but one that Kellogg is prepared to share with you. As your source for line materials, Kellogg has pledged itself to fill your requirements as rapidly and as efficiently as circumstances will permit.

To do this, a system of over 50 basic warehouses, strategically located throughout the Nation, is at your service. At each of these points, your orders are handled by men qualified by long experience to see that you get the right materials. These materials, without exception, are highest quality products, backed by the famous Kellogg "Double Guarantee." Rest assured, when you let Kellogg handle your orders for line supplies, service will be prompt, the materials will be right and the prices in line.

Check What You Need for Essential Repair and Maintenance Work . . . NOW!

To be sure you won't run short of essential pole line hardware or construction materials right in the middle of Spring repair work, check over your stocks now. Estimate your needs for line supplies, tools, wire, telephone protection equipment, etc. And to assure prompt, intelligent service on all your requirements, send your orders to Kellogg.

WAR MACHINE IN ACTION...

Atlanta, Ga.
Baltimore, Md.
Bedford, Mass.
Boston, Mass.
Brewton, Ala.
Cedar Rapids, Ia.
Centralia, Ill.
Chicago, Ill.
Cincinnati, Ohio
Cleveland, O.
Cortland, N. Y.
Dallas, Tex.
Decatur, Ill.
Detroit, Mich.
Fairfield, Iowa
Gladstone, Miss.
Harrison, N. J.
Hartford, Conn.
Jackson, Tenn.
Kansas City, Mo.
Kenosha, Wis.
Los Angeles, Calif.
Louisville, Miss.
Macomb, Ill.
Marion, Ind.
Winfield, Tex.
Versailles, Mo.
Sycamore, Ill.
Seattle, Wash.
Savannah, Ga.
San Francisco, Calif.
Sand Point, Idaho
St. Paul, Minn.
St. Louis, Mo.
Rutherford, N. J.
Rochester, N. Y.
Portland, Ore.
Portis, Kans.
Phillipsdale, R. I.
Philadelphia, Pa.
Panama, Okla.
Ottawa, Ill.
Oshkosh, Wis.
Norfolk, Va.
New Orleans, La.
Newark, N. J.
Muskegon, Mich.
Muncie, Ind.
Minneapolis, Minn.

You're Surrounded by

A Circle of Service

When You Deal with Kellogg

For the convenience of the whole Independent Telephone Industry, Kellogg employs a coast-to-coast distribution system for line supplies of every description. Over 50 basic warehouses are spotted throughout the country . . . complete pole line hardware stocks at 15 points . . . wire carried at 22 shipping centers . . . poles stocked at 11 yards . . . nearly a dozen warehouses for anchors, pins and brackets, tools and cross-arms.

The Army is ON THE JOB . . . teaching its Signal Corps members how to keep their lines open. Here, in this U. S. Army Signal Corps picture is one of Uncle Sam's men splicing cable.

Photo by U. S. Army Signal Corps

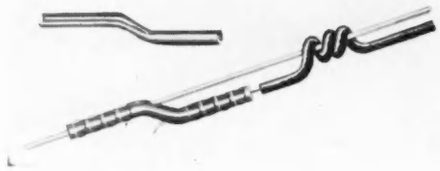
KELLOGG SWITCHBOARD & SUPPLY CO., CHICAGO

EXTRA EDITION

Telephon

An Advertisement of Leading Supply Manufacturers Whose Produ

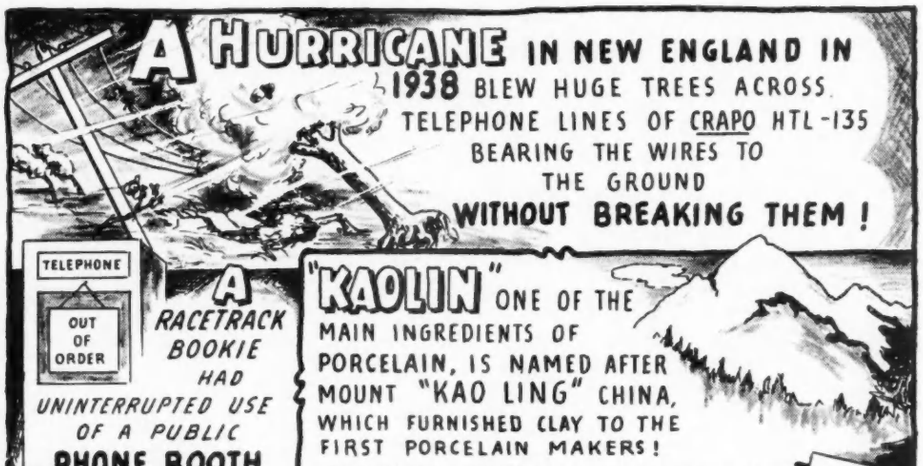
NEWEST AND BEST LINE



NO NEED TO CUT LINE TO MAKE CONNECTIONS WITH NEW NICO-TAP

The new Nicropress Sleeve Development, Nico-Tap, is effectively designed to make good tap-off connections fast. This new sleeve is split its entire length so that the need of cutting the line to make the connection is eliminated. All that is needed is to slip the sleeve over the line wire and compress. In spite of this fast and simple procedure Nico-Taps make strong and tight connections. Nico-Taps are now available in three sizes. Write for descriptive folder.

ODD.....BUT TRUE !


A HURRICANE IN NEW ENGLAND IN 1938 BLEW HUGE TREES ACROSS TELEPHONE LINES OF CRAPO HTL-135 BEARING THE WIRES TO THE GROUND WITHOUT BREAKING THEM !
TELEPHONE
OUT OF ORDER
A RACETRACK BOOKIE HAD UNINTERRUPTED USE OF A PUBLIC PHONE BOOTH BY HANGING AN "OUT OF ORDER" SIGN ON THE DOOR (TELEPHONE CO. INVESTIGATORS MADE THE DISCOVERY)
"KAOLIN" ONE OF THE MAIN INGREDIENTS OF PORCELAIN, IS NAMED AFTER MOUNT "KAO LING" CHINA, WHICH FURNISHED CLAY TO THE FIRST PORCELAIN MAKERS!
PORCELAIN TELEPHONE INSULATORS ARE USED THROUGHOUT THE WORLD !

Kellogg Koiled Kords Save Telephone Breakage

These Kellogg Koiled Kords answer a long felt need for a good retractable phone cord. They save telephone breakage because they are not apt to tangle with other objects or catch under desk or table corners. They stretch out easily from 9 inches (when not in use) to as much as 60 inches! The retractable action is secured by molding the outer rubber covering into the coiled shape, thus eliminating the use of springs, formed wires, rubber bands, etc. The outer rubber covering outwears braided covers. Write for circular.

Telephone Men Choose Indiana Crapo Steel Strand Wire for Economy and Adaptability to All Jobs

Its comparatively low first cost, its adaptability to the job at hand and its long, satisfactory life make Indiana Crapo Steel Strand Wire the first choice with telephone men everywhere. Lasting protection against corrosion is provided by the heavy, ductile, tightly-adherent zinc coating applied by the famous patented Crapo process. The superior tensile strength of steel, the ability to outlast normal needs, plus the Crapo protection against corrosion make this wire the safest and surest bet for all construction work.

Sharpshooters Are Foiled By Colorless "WT" Glass Insulators

Thanks to their low visibility, Whitall Tatum Glass Insulators are difficult targets for mischievous sharpshooters and rock throwers. The pure, colorless glass is achieved by precision processing of high quality ingredients. The Armstrong Cork Company manufactures all "WT's" to meet A.S.T.M. standards. They are actually stronger than standard steel supporting pins used in tests. They withstand temperature changes more severe than even the toughest service conditions can impose. When you specify "WT" Insulators, you're assured of top-notch, trouble-free performance.

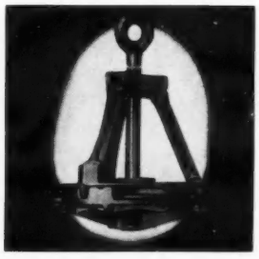
...one Facts

EXTRA EDITION

Are Distributed by the Kellogg Switchboard and Supply Company

...E SUPPLIES FROM KELLOGG

Nut Housing Locks Everstick Anchors on Rod, Permitting Easy Recovery of the Rod



The combination of rugged strength and simplicity of operation makes Everstick Anchors the choice of telephone men everywhere . . . for efficiency, economy and safety. Eversticks are made of Certified Malleable Iron. for toughness and rust resistant qualities. The patented Everstick Nut Housing locks anchor firmly on the rod, making installation simple under all conditions and permitting easy recovery of the rod. The base plates are specially constructed for extra strength. Use Everstick Anchors and be sure.

Ironite Drop Wire Is Strong and Flexible

Wartime economy proves Ironite. In the last war as in the present it has demonstrated its value as a conserver of vital war materials. At the same time it meets all demands for efficient, satisfactory service. Ironite Drop Wire—

Is unusually strong—resists sleet loads on long spans;

Has high conductivity—Ironite No. 18 BWG is equal to No. 22 B&S copper in drop wire lengths;

Has insulation with 10 times required dielectric qualities;

Is flexible—works and ties easily.

To help you meet rigid budgets in replacements you will find Ironite most reasonably priced. Specify Ironite Drop Wire for good service and low cost.

Kellogg Is Source of New Ideas, Materials and Methods for Telephone Men

Smart telephone men realize that one of the ways they can continue to operate most economically and profitably, is by being constantly on the alert for new ideas, new products, new methods, etc., that may be used advantageously. For only in this way can they be sure that their businesses are keeping pace with today's tempo. Were any one man to do this, however, it would obviously be necessary for him to devote almost his full time to the task.

There is a shorter, easier way than this for the telephone man to keep abreast of new developments. Kellogg, because of its understanding of the operating man's problems, and its position in the field, is the nerve center of what's new and good.

Most of the famous supply manufacturers know this. They know that Kellogg will recognize the need or application for a new product or a newer, improved method. For when new things are developed which will help the telephone man, they are cataloged. They know likewise, that Kellogg representatives, and advertisements like the one on this page will spread the news.

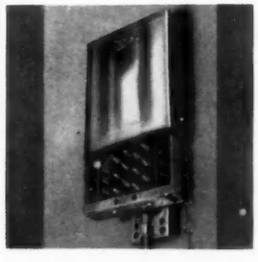
The Kellogg Company is composed of a large group of telephone men, who can judge what is needed and wanted in the field to operate better, faster, more profitably. And thru Kellogg, the operating man has the pick of the finest materials and developments of the best manufacturers!

CUTTING BLADE STAYS SHARP ON BARTLETT NO 1-W TREE TRIMMER

The most important thing to look for in a tree trimmer is a blade that will stay sharp even under heavy duty. That's why telephone men like this Bartlett Tree Trimmer so well. The special drop-forged, tool steel, side-cutting blade *holds its edge*. The Bartlett No. 1-W Tree Trimmer is easy to use, light in weight and assures quick clean cuts.

The 9 to 1 ratio of the compound lever and pulley design and the positive return of the blade to full cutting position assure fast, efficient work. Specify Bartlett Tree Trimmers.

X-B CABLE TERMINALS HAVE MANY EXCLUSIVE FEATURES



For the termination and distribution of lead covered cables the Cook Electric Company's Type X-B Cable Terminal represents a new high in engineering skill, precision manufacture and quality materials. Patented one piece Bakelite face plate and insulating fanning strip; sturdy, non-corroding studs with tinned soldered shoulders; patented cable entrance and holding sleeve for tight cable joint are a few of the exclusive X-B features which make for economy in installation and maintenance and uninterrupted service. Made in 6, 11, 16 and 26 pair sizes.

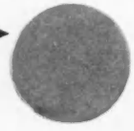
SAVE ALL ALONG THE LINE WITH

COPPER SAVING, DOLLAR SAVING

COPPERWELD

TELEPHONE companies are getting more miles of line with less copper by using Copperweld. And not only are they saving copper but they are getting all the Copperweld advantages of high strength, good conductivity, rust-resisting life and easy handling. Copperweld wire is guaranteed to have the rust-resisting life of solid copper. Copperweld wire stays new — its better voice transmission and greater safety are permanent characteristics.

USE COPPER WISELY · DO NOT WASTE



COPPERWELD STEEL COMPANY
GLASSPORT, PA.

Entered as Second Class Matter at the Post Office at Pontiac, Ill., under the Act of March 3, 1879.

"LET'S KEEP OUR EQUIPMENT IN FIRST CLASS CONDITION"
KEEP 'EM TALKING
Stromberg-Carlson
"YES, IT WILL HELP THE GOVERNMENT IF WE ARE READY FOR ANY EMERGENCY"

DO YOUR PART TO KEEP COMMUNICATION EFFICIENT!

Stromberg-Carlson stands ready to cooperate with Uncle Sam in keeping your present equipment operating for the duration. As a company, it is doing everything possible to keep complete the stocks of supplies needed for maintenance, replacement, and repair.

Check your inventory of supplies frequently — use your Stromberg-Carlson Catalog to order those things needed to "KEEP 'EM TALKING"!

No. 4500 COOK TRU-GAP DISCHARGERS

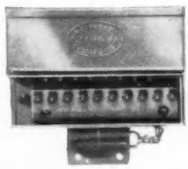
Recommended for use in pole cable terminals, sub-station protectors, and in rural line arresters.

No. P495 RELIABLE SAWTOOTH DISCHARGE BLOCKS

A self-cleaning sawtooth discharge block which eliminates dirty carbon trouble. It dissipates static discharges with no time lag and does not ground the line unnecessarily. Operates in the plant just as sensitively as carbon to carbon discharge gaps and has none of the latter's faults.

Carbon ground blocks of various shapes and thicknesses adapt the discharge block to fit any lightning arrester or cable terminal which uses standard carbon or copper blocks.

RELIABLE No. 222 OUTDOOR ARRESTERS



The No. 222 ten-wire cross arm arrester drains static from exposed lines. It is very sensitive and is used in connection with unprotected cable terminals where open wire or drop wire leads are too long to be left unprotected. It is also of outstanding value when placed one to three poles from a protected terminal. In locations where static is very troublesome, cross arm arresters should be placed at frequent intervals.

TYPE P RELIABLE DROP WIRE CLAMPS

An ideal device for attaching No. 17 B. & S. twisted pair or parallel drop wire to poles and buildings. It prolongs the life of the drop wire, permits free swinging at the tie, places all the wear on the hardware, and eliminates the sharp bends necessary with other methods.

No.	No. in Carton	Standard Package Quantity	Wt. Lb. per 500
P	25	500	77
R	25	500	83

COOK No. 7 MULTIPLE LIGHTNING ARRESTERS

For protection against lightning entering cable from subscribers' drops or open leads.
It consists of a metal back and bracket, bakelite base, phosphor bronze springs, Tru-Gap dischargers, and is covered with a zinc hood.
Capacity, 10 wires.

RELIABLE 55 FUSE

Enclosed type. Carried in stock in standard amperages.

KLEIN CUTTING PLIERS

A complete assortment of sizes and types for all purposes.

WOOD BRACKETS

These brackets are fastened to pole or wall by spikes.
Holes in brackets are 5/16-inch diameter.
Furnished painted or unpainted, except W. U. sizes which are furnished unpainted only.
Brackets are securely wired in bundles of 20 or 25 each.

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Kansas City
San Francisco
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Stromberg-Carlson

MAKERS OF VOICE TRANSMISSION AND VOICE RECEPTION APPARATUS FOR FORTY-EIGHT YEARS

TELEPHONE ENGINEER

MANAGEMENT • ENGINEERING • MAINTENANCE

"THE NATIONAL TELEPHONE MAGAZINE"
FOUNDED 1909

VOLUME 46—NO. 4

APRIL
1942

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The standard for telephone and electrical use.

Eliminates all possibility of corrosion, resistance, or leakage. "Plastic Rosin," a Kester feature, prevents rosin spoilage.

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ROCHESTER, N. Y.

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CROSS-ARMS
- WASHINGTON FIR
- CREOSOTED YELLOW PINE
- GULF-RED CYPRESS

Prompt Shipments from Conveniently Located Warehouses
AMERICAN CROSS-ARM, INC.

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NEW
Bartlett Mfg. Co. Line Clearing SAW

Makes *fast-clean - easy* cuts and is easy to file.

Streamlined, speedy-cutting pruning saw with big, husky teeth that cut the full length of the blade. Made in either 24 or 26 in. length with choice of **two** types of handle.

Distributed by
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ACROSS THE Editor's Desk

A Spring Construction Number in war time is something that at first seems incongruous when we consider the "can't do this" and "can't do thats" of present day blitzkreig methods of both priorities and armies. The idea of suggesting methods that are changing from day to day because of necessary materials being needed in other industries does not in the least cure the wrinkles we have noticed on our brow of late. If we look hard enough there is always a silver lining. Sometimes a child can make the difference.

We were able to relax, mentally, and from a rule never to reprint poetry, when we received a note from our old friend Bill McClusky of the Citizens Telephone Co. of Rock Springs, Ohio, delivered via "Red" Parsons of the Kellogg Company. It's a poem by Bill's 12-year old son, Bill. Its appropos now—so here it is:

MY DADDY

My Daddy is a hero,
Although no one claims him as one.
He works outside when it is zero,
And also in the hot blazing sun.

He replaces the poles that are broken,
And repairs the wires that are there.
So that all the words that are spoken
Can be heard, away over the air.

He is prepared for any call
That might come in times of distress.
Be it very large or very small,
He'll always untangle the mess.

He loves to work with the wires,
And does the best that he can.
When he's working he never tires,
For my Daddy's a telephone man.

WHAT CAN WE REBUILD FOR YOU?

"AR" Rebuilding Service includes the factory rebuilding and modernization of manual boards, P.B.X.'s, automatic equipment, toll boards, telephones, etc.

AR Rebuilding Service is not confined to telephones, but includes manual and automatic equipment of all kinds and types, up to large central office switchboards. In most cases, substitute equipment can be supplied during the rebuilding period, if desired. Remember, AR rebuilding means a complete factory job of reconstruction and modernization, using latest methods and skilled, experienced telephone craftsmen. . . . Write for prices and full information.

THE MARK OF QUALITY IN REBUILDING SERVICE

AUTOMATIC ELECTRIC

ORIGINATORS AND DEVELOPERS OF STROWGER STEP-BY-STEP MACHINE SWITCHING AUTOMATIC DIAL SYSTEMS

MAKERS OF TELEPHONE, SIGNALING AND COMMUNICATION APPARATUS
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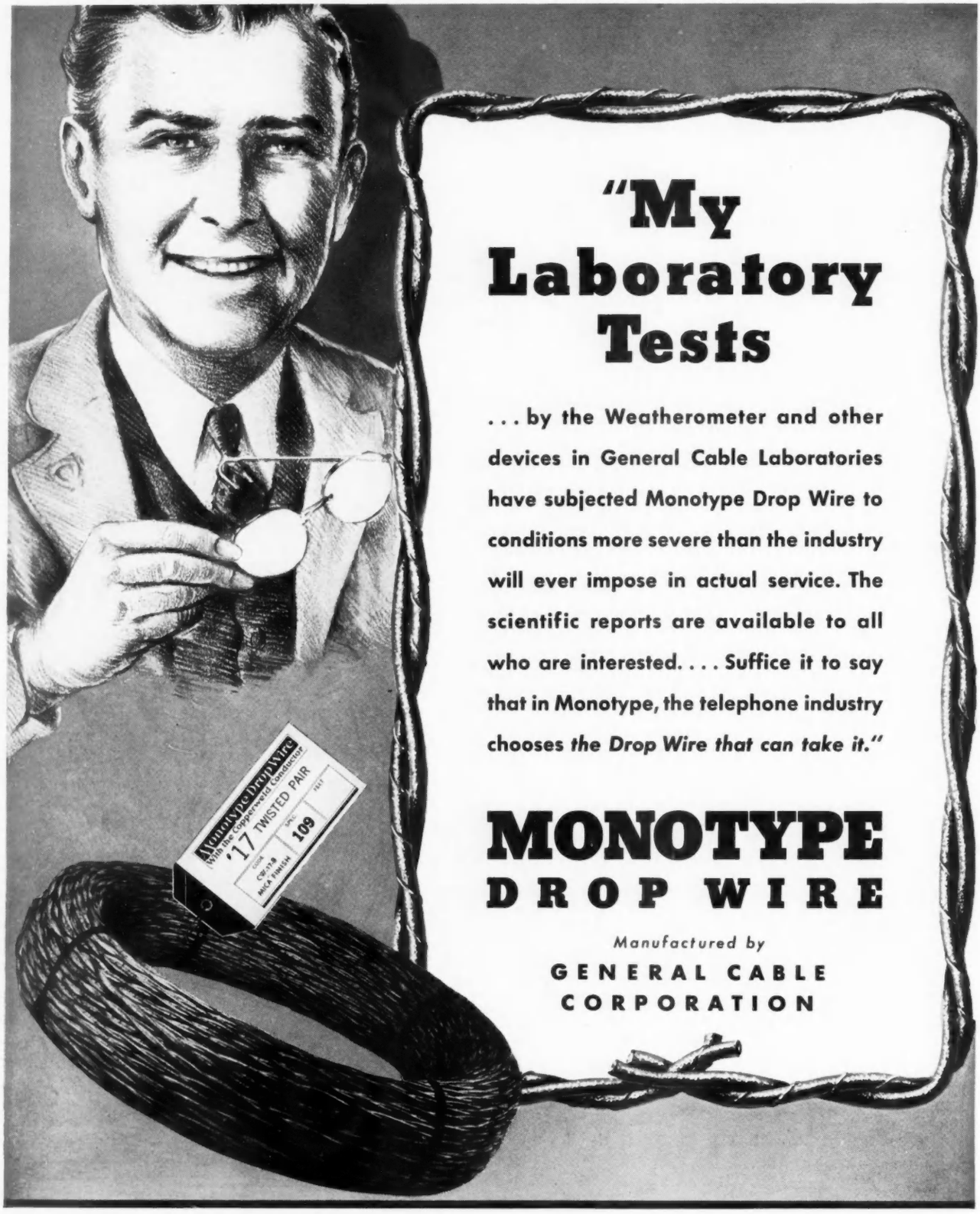


"My Laboratory Tests

. . . by the Weatherometer and other devices in General Cable Laboratories have subjected Monotype Drop Wire to conditions more severe than the industry will ever impose in actual service. The scientific reports are available to all who are interested. . . . Suffice it to say that in Monotype, the telephone industry chooses *the Drop Wire that can take it.*"

MONOTYPE DROP WIRE

Manufactured by

GENERAL CABLE CORPORATION

DISTRIBUTED BY

AMERICAN AUTOMATIC ELECTRIC SALES COMPANY

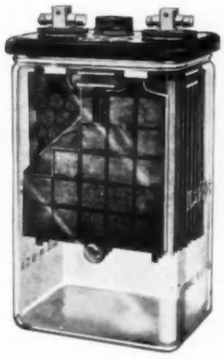
1033 WEST VAN BUREN STREET · CHICAGO, ILLINOIS

BRANCH WAREHOUSES AT DALLAS, KANSAS CITY, LOS ANGELES, RICHMOND (VA.) AND SAN FRANCISCO

Upholding a telephone tradition

SOMEWHERE IN THE U. S. A. an aircraft spotter hears or sees an unknown plane. His call of "Army Flash!" tells an operator that here is a message of major importance. It must go through to the proper Air Corps filter board... and it does... promptly.

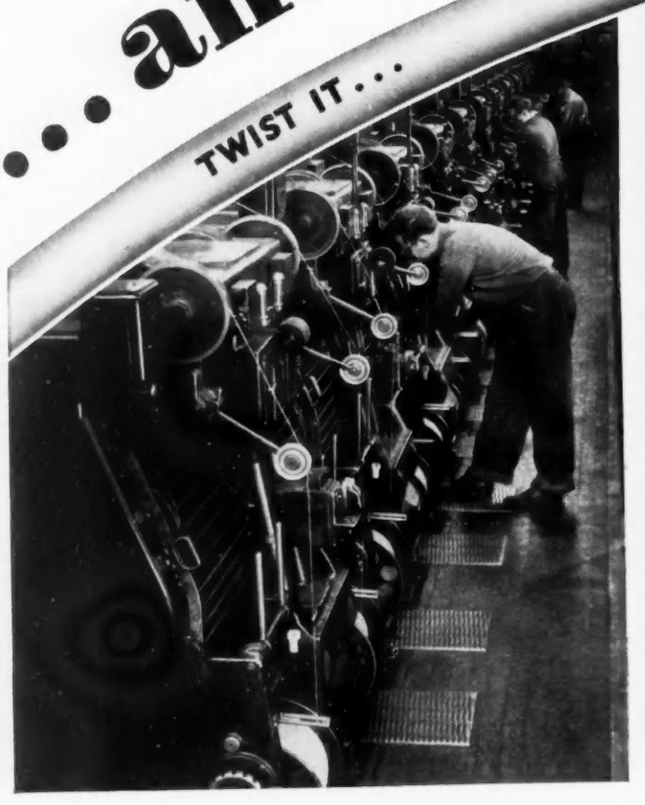
New times bring new ways for the telephone to serve the nation, and Exide is proud to play any part in the job. Exide Telephone Batteries, whether emergency reserve, common battery, signalling, or P. B. X., stand by to help in our country's defense.



THE ELECTRIC STORAGE BATTERY CO., Philadelphia
The World's Largest Manufacturers of Storage Batteries for Every Purpose
Exide Batteries of Canada, Limited, Toronto

Exide
TELEPHONE BATTERIES

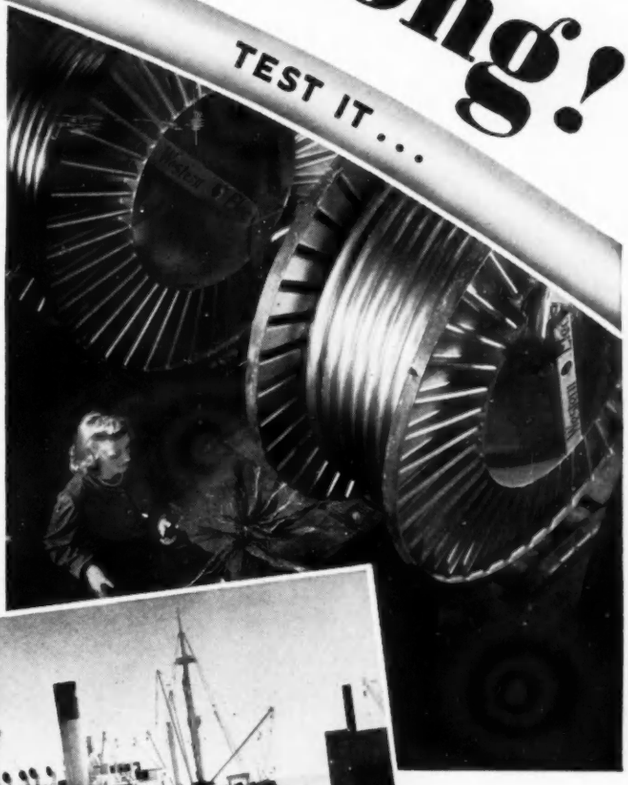
. . . and the CABLE

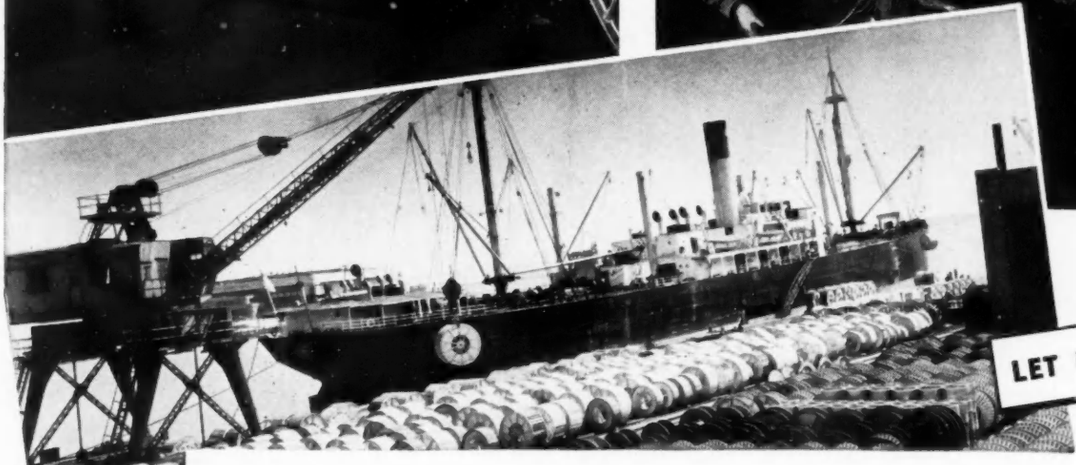


goes rolling along!

SHEATH IT . . .

TEST IT . . .





LET IT ROLL!

More and more cable, more and still more telephone apparatus of all kinds are needed to meet the demands of our armed forces and war industries. All the things we've learned in 60 years' experience — all our manufacturing facilities — are helping us now to Keep 'em Rolling!

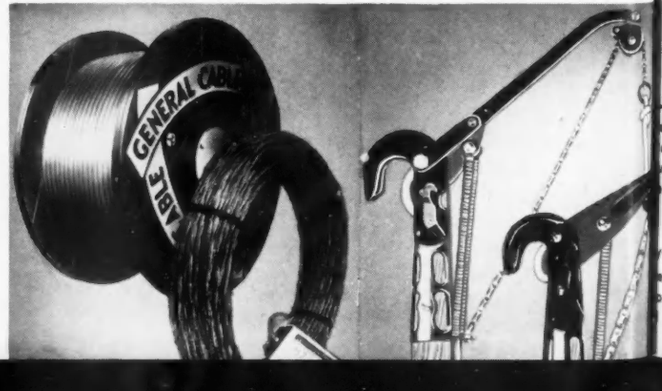
Western Electric

Distributed by GraybaR

TAKE NO CHANCES WITH YOUR "L

← "Estwing" hammers and hatchets—forged from fine tool steel in one piece to make them unbreakable.

→ "General Cable's" cable and Monotype "Copperweld" drop wire—two products of outstanding superiority.



UR "LINES OF COMMUNICATION"!

Keep their operation up to par with the proved high quality supply and maintenance products you get from Automatic Electric . . . . . .

"Make the best of what you have" is the order of the day to telephone companies. This means that repairs must be made with even greater care than usual, and materials used for maintenance selected for highest quality and longest life.

Today's far-sighted policy for telephone companies, large and small, is to avoid risking interruption in service or lowering of operating standards. Play safe in the selection of supplies and materials by ordering from Automatic Electric's new and comprehensive Supply Catalog 6000. It includes only the newest developments in telephone products—all well-known and proved brands produced by nationally known manufacturers.

These telephone construction materials will save you money because they go up easier and quicker—and stay up longer! They'll help you aid the war effort, too, by keeping your service at the high level required for maximum national efficiency. . . . Order from Catalog 6000. If you haven't a copy, we'll send you one promptly upon request.

IMPORTANT NOTE: Under present conditions, certain orders may be subject to delay. Shipments can usually be expedited if you include preference ratings with all orders which so qualify.

AUTOMATIC ELECTRIC

ORIGINATORS AND DEVELOPERS OF STROWGER STEP-BY-STEP MACHINE SWITCHING AUTOMATIC DIAL SYSTEMS

MAKERS OF TELEPHONE, SIGNALING AND COMMUNICATION APPARATUS
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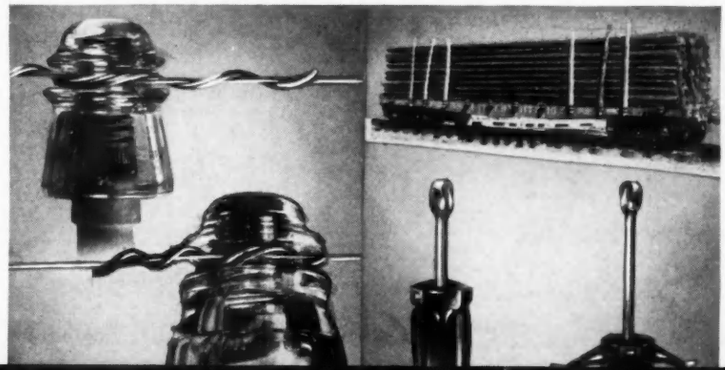
hitall Tatum" and mingray" insulators — gnized for high quality long trouble-free life.



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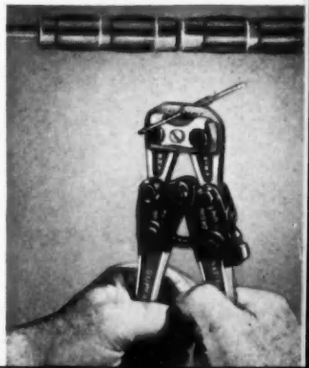

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INFORMATION for USERS of TELEPHONE WIRE and CABLE

Two important commodities entering into the manufacture of Telephone Wire and Cable were obtained largely from territories now occupied by the enemy. As of course you know, the principal sources of rubber and tin were Malaya and the Netherlands East Indies, now in Japanese hands.

In Telephone Wire and Cable, rubber is used for insulation, tin as a protective coating on rubber covered conductors and as an aid to soldering on certain other conductors.

Phillips metallurgists have developed alloys requiring smaller quantities of tin than before, and our rubber chemists have perfected compounds using reclaimed rubber instead of new crude rubber. This does not altogether solve the problem, however, and the situation may be worse in future.

Our only reason for explaining these matters is to help our customers get the maximum benefit from the available materials. Here is what you can do to help yourselves and us:

1. **Avoid purchasing rubber covered wire for which bare wire or wire having another type of insulation can be used.**
2. **Obtain the maximum life from your present wire installations by reclaiming any good wire taken from one installation and using it elsewhere.**
3. **Use your present warehouse stocks of rubber covered wire as sparingly as possible.**
4. **Instruct your installers to use extra care in soldering either tin alloy coated wire or wire without any coating. Ordinary equipment and fluxes will do the job.**

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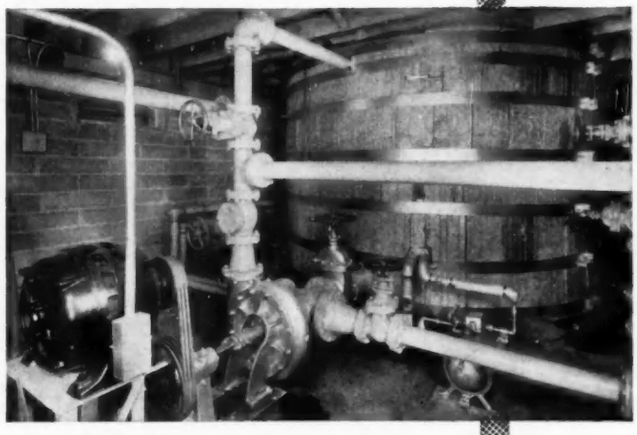
View of treating tanks in which poles are immersed full length



Part of equipment and tanks for preparing preservative solution

MANY telephone lines need only the replacement of some poles (and little or no other material) to increase their efficiency and load capacity. This is fortunate at this time . . . when communication is so important to war effort . . . because P & H "PENTA" POLES are available NOW, in many sizes, without priority.

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P & H "PENTA" Northern White Cedar Telephone Poles are full-length treated by laboratory-controlled submersion in a highly-chlorinated phenol solution which is many times more toxic than any other pole preservative in common use. The effective protection of P & H "PENTA" treatment against sapwood decay and termites has been proved by exhaustive laboratory tests and by long-time field tests under prolific decay and termite conditions.

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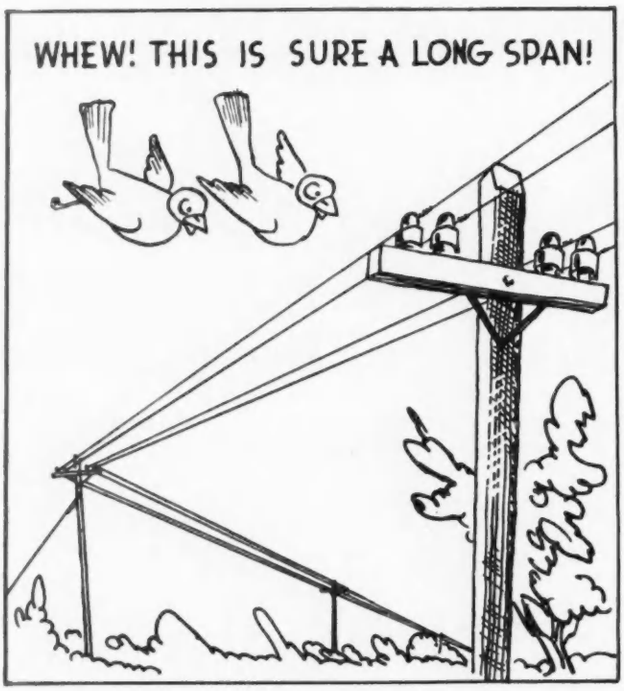

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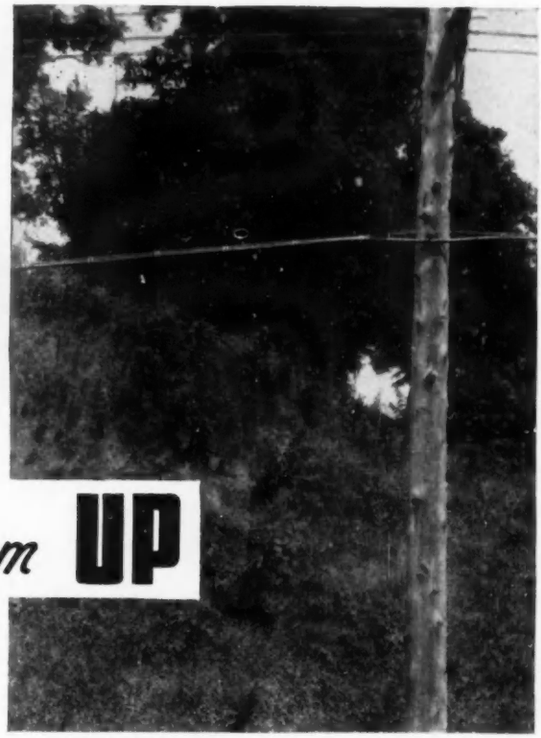

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1.

2.

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3.

4.

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CORRECT, MR. TALBOT! For over forty years, "Eveready" "Columbia" "Gray Label" Long Life telephone cells have been noted for their sustained voltage . . . longer life . . . uniform performance. These *original* telephone cells . . . developed in the world's largest dry battery laboratory . . . are made to the highest standards.

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Highlights of the Communications News

Important Communications developments of the past month, briefed for busy readers

by

ROLAND C. DAVIES
Editor, Telecommunications Reports

Outlook

THE surrender of the gallant and small American force on the Bataan Peninsula after their heroic Thermopylae stand against the Japanese hordes constituted a turn in the world conflict that certainly brings the war still closer to the efforts and planning of the telephone industry and, of course, the entire communications industry—to plunge forward with greater endeavor and zeal to aid the Nation towards the ultimate goal of Victory.

Signal Corps

THE telephone industry, while it is well recognized to be achieving excellent cooperation and results in furnishing facilities for the Army and Navy and civilian defense throughout the country, can well take notice of the recent words of Major General Dawson Olmstead, Chief Signal Officer of the Army, before the graduating class of 361 Signal Corps officers at the Fort Monmouth, N. J. Signal School—the largest group yet to be commissioned at the School's Officer Candidate course. General Olmstead stressed that "the lightning-like speed of modern war demands dependable communications under all circumstances and conditions" and "wholehearted support and teamwork will do that job." He told the new officers of the Signal Corps—and his words likewise apply to the telephone industry— that nothing short of such support and teamwork "will be worthy of your skill, patriotism and energy," and "rigid discipline, irrepressible cheerfulness in the face of trying conditions, keen intelligence and physical stamina are prerequisite at all times."

Super-Communication

AT the same exercises Harvey H. Bundy, Special Assistant to the Secretary of War, in a message from Secretary Stimson to the new officers told them that the Secretary was giving his constant personal attention to matters of communications because it is a branch of the Army by which "the war might be lost, but can and will be won." The Army wants "super-communications" in the opinion of the Secretary of War and it was noted that the Signal Corps for two years acquired equipment at the rate of $10,000,000 a year while this year it is allotted $3,000,000,000 for that purpose.

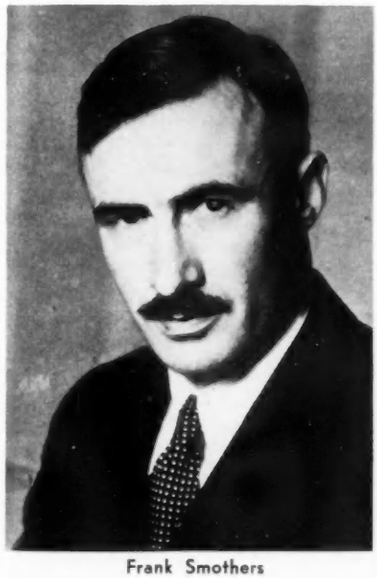
Curtailment

THE telephone industry is shortly learning about the drastic curtailments that are to effect the civilian telephone service of the nation to a marked degree to save the scarce metals and materials, especially copper, so sorely needed for the war effort. The curtailment order—an amendment to the previously issued L-50 Conservation Order but far overshadowing the restrictions of the latter—and two accompanying P (priority rating) orders for Maintenance and Repair and Operating Construction for exchange service had been prepared weeks ago by the Communications Branch of the War Production Board, headed by Leighton H. Peebles, an extremely able and conscientious government official, but as happens in scores of instances the jockeying for power and position of other agencies commenced when these orders were circulated about interested governmental units, The Defense Communications Board, the FCC and the Civilian Supply Division of WPB, which houses most of the New Dealers in the WPB, all had to try to tear apart the orders. While some of the DCB and Civilian Supply suggestions undoubtedly were meritorious, many others were understood to be impracticable and destructive of good telephone service. This has caused quite an impasse and may lead to a showdown as to which agency should have the responsibility over communications.

Co-ordinator (?)

THE injection of the Defense Communications Board, headed by FCC Chairman James Lawrence Fly, into

Executive Conference April 28 and 29



Frank Smothers

Program for the Spring Executives Conference of the United States Independent Telephone Association has been completed and a record attendance is expected at the Stevens Hotel, Chicago, on April 28 for the opening of the two-day meeting.

The feature speaker, outside the industry, will be Frank Smothers, foreign correspondent of the Chicago Daily News.

Mr. Smothers has been connected with the Foreign Service department of the Daily News since 1933 and has served them in every country in Europe. He was expelled from Italy for "unfriendly" dispatches. He served in Berlin during war time and later was sent to the far East in places where the United Nations are now fighting.

Mr. Smothers has studied with a serious, inquiring mind what he has observed in these countries. He visited Iceland last summer and has just returned from Pearl Harbor.

the priorities picture and the WPB activities has aroused some speculation as to whether the stage is not now being prepared for the often-rumored idea of a Coordinator of Communications similar to Eastman in Transportation and Secretary Ickes for Petroleum. Such a move would in all probability place Chairman Fly in a leading position to be named to this post. However, the general feeling among the military agencies and other departments, directly interested in communications matters, is that the DCB has made a most excellent record of achievement and planning so that Coordinator in the field of communications is not only unnecessary but would also be far less effective than the pooling of the views of the Army, Navy, FCC and State and Treasury Departments now done by the DCB.

Telegraph Merger Bill

THE long-awaited introduction of the permissive telegraph merger bill in Congress occurred in mid-April, when Senators McFarland, Arizona Republican, and White, Maine Republican, jointly dropped the measure into the Senate hopper and House Interstate Commerce Committee Chairman Lea sponsored a similar proposal. While the permissive telegraph merger bill is primarily important to the telegraph industry, the telephone industry must follow its progress with close interest because of the paramount changes projected by the legislation in the telegraph field and because of the proposal that the consolidated Western Union-Postal Telegraph merged company would be able to take over the handling of the Bell System's teletypewriter exchange service at least in its commercial aspects.

Of extreme significance for the entire communications industry was the statement of Senator White, who is regarded as the best-informed authority on communications in Congress, that unless a voluntary telegraph merger of Western Union and Postal Telegraph occurs there is a definite danger of Government ownership of the Postal system due to the large stake of $6,500,000 of Reconstruction Finance Corporation loans to that company. Both Senator McFarland and Senator White in urging early consideration of the merger legislation—and both said the bill was far from perfect—because of the dangerous financial plight of Postal Telegraph which is having difficulty even in regard to its operating expenses. Senator White pointed out that that if the government took over operation of Postal it would mean Western Union would be in direct competition with the government. This might result, he stressed, in the government assuming **"the entire burden of domestic wire and point-to-point radio communications."** The Maine Senator stated that he "infinitely" preferred to government ownership unification of Postal and Western Union within the law and under FCC supervision.

The permissive merger bill would allow the voluntary consolidation of Western Union and Postal Telegraph as a domestic telegraph system and the fusion of the international cable and radiotelegraph companies into another distinct consolidation, possibly two mergers—one of cables and another of the radiotelegraph companies. In the event of Congressional enactment of the merger law, it is certain that the Western Union and Postal Telegraph would be the first step in consolidation discussion and in such an event Western Union would divest itself after a merger of its cables. The FCC was given complete and the broadest sort of powers in supervising and approving the terms of the merger with lengthy hearings.

The bill contained only one terse provision to permit the participation of the merged Western Union-Postal company in the operations of the Bell System's teletypewriter exchange service. Although an original draft of the bill had contained a direct reference to the TWX service, the introduced measure stated that the term, "consolidation and merger means the unification and integration, by purchase, lease or otherwise of the properties and facilities used or capable of use in the transmission or reception of record communications by wire or radio."

Hearings on the Senate bill—and the Senate is slated to act first on the legislation — are likely to commence around April 20 after Congress returns from its Easter recess. A subcommittee of five members of the Senate Interstate Commerce Committee will conduct the hearings.

Whether or not the legislation will be greatly revised depends upon the attitude of the communications companies and the telegraph labor unions. Even if enacted, the legislation, unless it is considerably revamped in regard to its labor safeguards particularly may not provide a springboard for a voluntary merger of Western Union and Postal because the former could not accept the conditions. These labor safeguards are the broadest and most specific standards for the protection of employees under merger ever placed on the statute books. In a nutshell, the bill would force the telegraph merger company to take over all employees of five years or more service prior to the consolidation at the same wages, position and seniority and all employees on the payrolls of March 1, 1941, would be kept at the same pay rate but could be transferred with the company paying their costs of transfer and two months pay to cover any losses in moving. Dismissed employees would receive severance pay a month for each year of service. All employees in military or naval service would have their employment with the company retained when the war is over but the bill said nothing about employees who replaced those in service, intimating that the latter also might have to be retained. As the tightest safeguard the bill recommended that no employees can have their pay reduced or be discharged for the first five years of the merger or the six months preceding the merger. The NLRB was authorized a collective bargaining election within a month after the merger's approval.

The telephone industry must particularly analyze a proposal in the bill

(Please turn to page 52)

Convention Dates

Ohio Independent Telephone Association, Deshler-Wallick Hotel, Columbus, April 21 and 22.

U.S.I.T.A. Executive's Spring Conference, Stevens Hotel, Chicago, April 28 and 29.

Indiana Telephone Association, Claypoole Hotel, Indianapolis, May 6 and 7.

Illinois Telephone Association, Pere Marquette Hotel, Peoria, May 12 and 13.

Pennsylvania Independent Telephone Association, Sterling Hotel, Wilkes-Barre, May 21, 22 and 23.

New York State Telephone Association, Hotel Syracuse, Syracuse, May 25 and 26.

Wisconsin State Telephone Association, June 3 and 4 Pfister Hotel, Milwaukee, Wis.

North Dakota Telephone Association, Dakota Hotel, Grand Forks, June 9 and 10.

California Independent Telephone Association, Miramar Hotel, Santa Monica, June 18 and 19.

Kentucky Independent Telephone Association, Henry Clay Hotel, Ashland, September 15 and 16.

United States Independent Telephone Association, Hotel Stevens, Chicago, October 13, 14, 15 and 16.

Missouri Telephone Assoc., Muehlebach Hotel, Kansas City, Nov. 16, 17 and 18.

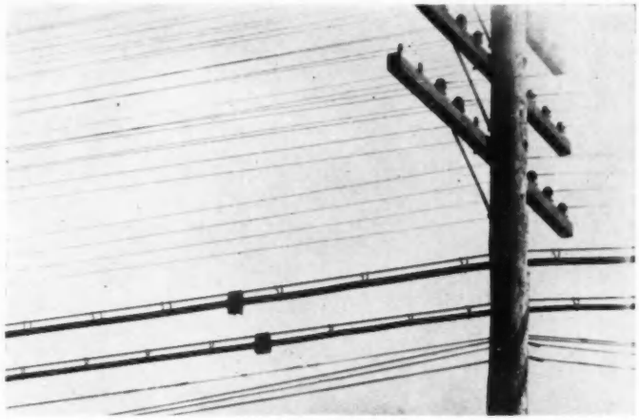


Fig. 7—Use of Grade Clamps to Prevent Cable Creeping.

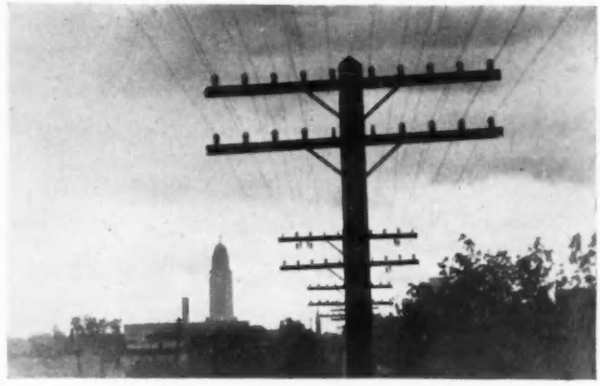


Fig. 3—Well Maintained Open Wire Lead.

Preventative Maintenance As A Conservation Measure

By
B. C. BURDEN
Lincoln Tel. & Tel. Co.
Technical Editor

This article discusses special maintenance practices which if followed will result in longer life for plant items.

General

NOW as never before there is need for careful and efficient telephone plant maintenance practices. Vital materials such as rubber, lead and copper must not be wasted. Plant practices which have been satisfactory for peacetime conditions must be revised to fit the emergency that now prevails. While it is still possible to get drop wire, cable, and other plant materials, it is certain that as time goes on that it will be increasingly difficult to get needed materials.

The old adage "An ounce of prevention is worth a pound of cure" very aptly applies to the telephone plant maintenance program, as the ounce of prevention is largely a labor item and does not require a priority as does the pound of cure.

NOTICE

Everything is being done to have your magazine reach you on time. In some cases it is necessary for mail trains to be held up for war material transportation. We are doing everything we can to give you prompt delivery, but are delayed because of circumstances beyond our control.

Drop Wire Plant

DROP wire plant deserves special consideration in a preventative maintenance program as it contains copper and rubber, both critical materials. It is also the most perishable of the several principal items of outside plant.

The most common cause of short drop wire life is inadequate tree clearance. Trees and drop wire, like whiskey and automobiles, do not get along well together.

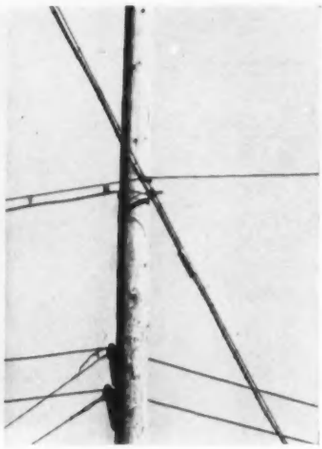
Some telephone men mistakenly assume that where it is necessary to get an open wire lead through a bad tree situation that drop wire will solve the problem. Unless the drop wire is properly placed it will, more than likely, cause more trouble than the open wire.

In the placing of new drops avoid stringing through trees even if it requires a longer run. Where trees cannot be avoided place adequate protection against the abrasive action of the tree limbs on the drops. Figure 1 shows the use of loom for this purpose.

Many drops require repair or replacement as a result of poorly made ties at dead end supports. The handmade dead end tie has largely been replaced with the patented dead end supports now available, and these can be quickly and easily applied and avoid damage at point of support.

Figure 2 shows a neat and serviceable drop installation at point of attachment.

Fig. 2—Neat and Serviceable Drop Installation.



(Left) Fig. 4—Pipe Braced Dead End Pole of a Type Suitable for Cable Leads Where End Guys Cannot be Obtained.

(Right) Fig. 5—Well Made Cable Corner.

With drop wire getting more difficult to obtain, greater use of open wire for drop purposes is to be expected. In this connection the new small diameter Copperweld conductors should prove popular.

Open Wire Plant

OPEN wire plant is less subject to damage from neglect than either cable or drop wire. It can be continued in use indefinitely and will give good transmission provided some attention is given to periodic mile by mile checks of resistance.

Such tests can be made with the ordinary portable ohmmeter and will disclose defective joints which should be cut out and replaced by the compression or double tube type sleeve. Even though iron wire is extremely rusty, if the splices are good, fair service can be rendered.

Spring is a good season to take stock of the open wire plant and to pull slack, place new ties where needed, remake jumper connections at terminal poles, and cut in transpositions to reduce cross-talk and inductive interference. Figure 3 shows a well maintained open wire lead.

Cable Plant

ALTHOUGH cable is not as perishable as drop wire, it is more difficult and expensive to maintain, hence needs special maintenance consideration during the present critical period.

Failure to take proper maintenance precautions on a cable plant is likely to prove not only costly but embarrassing as replacement of damaged cable is no longer a simple process.

If a cable plant is to be effectively maintained, the maintenance program must be on a preventative and not a trouble shooting basis. Unlike open wire plant which suffers only from service interruption when poorly maintained, cable will usually be damaged in such manner that expensive repair work will be required.

The two essential elements of a satisfactory cable maintenance program are:

1. Correction of any faulty construction which is a potential source of sheath damage.
2. Periodic inspection and repair of of the entire cable plant.

Cable Maintenance Program

THE successful operation of a cable plant depends on keeping the lead sheath in such condition that moisture cannot enter. The sheath is in reality a continuous lead pipe and even a pin hole will admit sufficient moisture to result in service interruption to a large number of pairs.

Cable that is incorrectly placed to start with will result in eventual sheath openings and consequent trouble.

In making an examination of cable plant to determine what changes in construction are required to insure against future damage, the following items should be observed.

1. Evidence of ring cutting in slack spans.
2. Inadequate support of heavy sleeves.
3. Insufficient slack at corners.
4. Failure to provide clamps on steep grades.
5. Lack of protection where cable passes thru trees.
6. Improperly installed cable terminals.
7. Missing rings.

Slack spans are sometimes necessary where it is impracticable to set an anchor at the end of the lead. Experience has shown that unless the end pole which supports the slack span is substantial that the pole will bend sufficiently to throw excessive slack in the span and the resultant movement of the cable and messenger due to wind pressure will cause ring cutting and in relatively short time ruin the cable in the slack span.

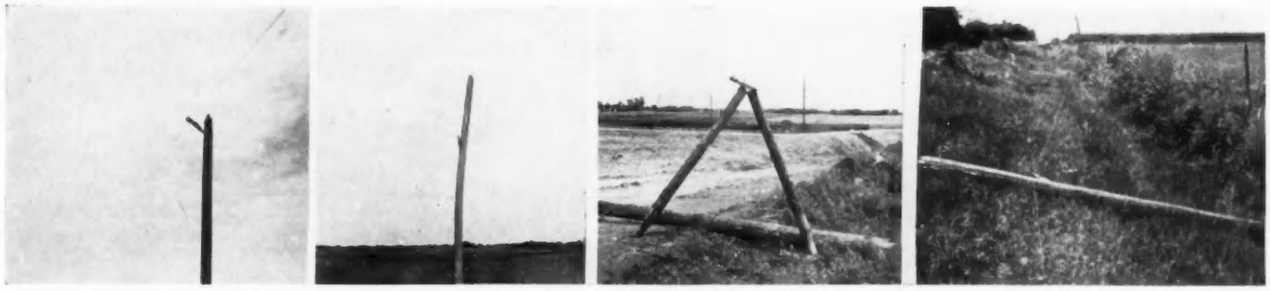
A preferable type of construction that avoids the use of the slack span is the pipe braced pole as shown on the power pole line in Figure 4.

Another common source of cable failure is inadequately supported sleeves. Lack of proper sleeve support, particularly on the heavier cables will usually result in a crack appearing in the cable at or near the wiped joint.

(Please turn to page 39)

Fig. 6—Properly Constructed Aerial Cable Turn.

Fig. 7-A—Bad Tree Condition on Cable Lead.



Neglected maintenance means poor service and increased liability to the traveling public.

RURAL TELEPHONE PROBLEMS SOLVED IN MINNESOTA

By RAY W. SMITH, Editor

The Minnesota Telephone Association had a problem. Their active secretary, J. C. Crowley, Jr. decided to do something about it. You might have the same problems in your community and with this in mind we are presenting the story of how Mr. Crowley worked on his idea.

DURING the convention of the Minnesota Telephone Association late in January there was much interest in a display by the Association of what could be done to combat problems on rural telephone lines that would result in better service to subscribers. As the construction season is here we think the report on the activities of the Minnesota Association will be good reading to many telephone men in rural localities as well as connecting companies. TELEPHONE ENGINEER thanks its Minnesota friends and especially J. C. Crowley, Jr., the Association secretary.

Telephone communication service in the State of Minnesota is provided by the following number of companies:

In the cases of the larger companies, A, B, C, D and E companies, their organizations, management, engineering, traffic and maintenance forces are men and women of long experience and carefully trained in the particular departments with which they are associated.

Many of the Class D and E companies are individually owned, operated and maintained by their proprietors and members of his family.

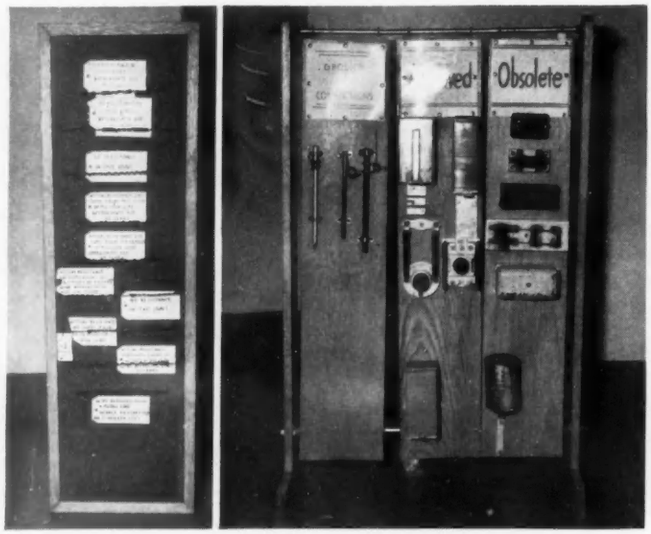
The Service Stations of the Class F companies, who operate one hundred fourteen (114) exchanges in the state, serving 6,138 stations; and the other 39,087 stations are served by the various classes of companies as follows:→

Company Classification	Number Companies	Number of Exchanges Operated	Number of Company Owned Stations
A	2	174	377,859
B	10	75	36,067
C	46	98	38,663
D	67	87	19,631
E	146	153	16,315
F	1933	114	45,225
Total (December 31, 1939)			533,760

Thus it will be seen from the above figures that the responsibility of serving these forty-five thousand service stations is divided among the exchange companies. It must be noted that the highest percentage of rural switched stations, in comparison to the number of company owned stations operated,

	Service Stations
Class A Companies	19,481
Class B Companies	3,659
Class C Companies	5,492
Class D Companies	4,441
Class E Companies	8,014
Class F Companies operate 114 exchanges	6,138
Total	45,225

Another example of high resistance points means poor transmission and poor signalling.



(Right) Panel showing proper ground rod connections on galvanized copperweld and plain ground rods. Approved fuse and carbon protection of different manufacturers and obsolete substation protectors where lines have been paralleled by power lines.

(Left) Panel with joints showing that it is impossible to ascertain whether a joint or splice has any resistance or not by observation. Each joint must be measured to ascertain if there is any resistance in same.

Demonstration board and panels used by the Minnesota Telephone Association at farm line group meetings.

falls upon the smaller Class D, E and F companies.

The majority of these farm lines or switched companies were constructed over thirty years ago, and in over 80% of the cases were originally constructed as single wire or grounded circuits and rendered a very satisfactory service to their owners, until such time as these lines were paralleled by electric transmission lines, and when so paralleled it necessitated that these single wire lines be made metallic.

With the rapid extension of rural electric lines during the years 1935 to 1941 the question of inductive interference to these lines became a problem, due to the limited experience of the owners and operators of these smaller units of properties the lack of necessary costly instruments to measure the resistances and noise levels created by these inductive influences where parallels were constructed became serious.

Early in 1936 the Minnesota Railroad and Warehouse Commission took cognizance of the serious interference to the communication lines to the rural communities of the state and issued a pamphlet advising what should be done to overcome this interference and the transmission engineers of the Northwestern Bell and Independent companies were called upon for advice and transposition schemes for metallic line parallels.

As a result of the importance of this branch of the service, the Northwestern Bell Company engineers designed and had constructed a demonstration board designed so as to demonstrate to the layman just what occurs when one of these grounded lines were paralleled by electric transmission lines. This board also is designed to show the effect of high resistance joints in the line wire, the effect of a broken cord on the transmitter or receiver cord, the output of the generator and the resulting effect on signalling with a poor generator, as well as the results on transmission with a poor or rundown battery and many other features that the experienced telephone man is familiar with.

As a result of this board being shown through demonstrations in Northwestern Bell exchanges, Secretary J. C. Crowley of the Minnesota Telephone Association, secured from the Northwestern Bell Company their consent and approval of the use of this demonstration set to use in demonstrations throughout the Independent exchanges of the state having these so called service stations connected thereto. In addition to this demonstration board, Secretary Crowley has had mounted on display panels proper ground rod connections for plain, galvanized and copper clad ground rods.

There is another panel showing approved station protectors to be used where telephone lines are paralleled by electric lines. Another panel shows obsolete station protectors of the type that should be removed where these electric lines are constructed.

Mounted on another panel are joints of iron wire taken from working lines showing from O resistance to two joints in one piece of wire twenty-seven inches long having a resistance equal to 43 miles of No. 12 iron wire.

(Please turn to page 42)

Tree and brush conditions affect signalling and transmission.

Independents Sponsoring Signal Corps Units

Lt. Col. Wm. C. Henry

A number of Signal Corps units are now in process of formation by several of the larger Independent operating telephone companies and various state telephone associations. These units, which were discussed in our last issue, are being sponsored by Independents. Officers and technicians selected by the sponsor will staff the units which are open to telephone men between the ages of 21 and 45.

Added impetus to recruit these affiliated units resulted from a meeting in Chicago last fortnight when state association secretaries from Illinois, Indiana, Ohio, Minnesota, Michigan, Wisconsin and Iowa met in the offices of the United States Independent Telephone Association with Lt. Col. Wm. C. Henry who is serving as liaison to the Independent telephone companies in the Office of the Chief Signal Officer.

After several hours of study a number of the Association secretaries signified their intention to Col. Henry that they would sponsor certain of the units and are now asking for volunteers in their states. A representative of one of the large operating groups was in attendance and had one unit ready to check for formation. When a telephone man applies for a place in one of these Signal Corps units we understand his draft board will honor it even though the call for duty might come later than the date he is scheduled to be inducted as a draftee.

We suggest you fill out the questionnaire reproduced on this page and send it AT ONCE to your State Association secretary.

These units include Signal Repair, Signal Installation, Signal Depot, Signal Operation, and Signal Construction Companies and Signal Construction Battalions for duty with ground forces as well as Signal Aircraft Warning Plotting Companies, Signal Aircraft Warning Battalions and Regiments, Signal Air Depot Platoons, Signal Aviation Service Center Companies and Signal Depot Companies, for service with the Air Forces. These units vary in size from a Signal Air Depot Platoon with a cadre of one officer and five technicians, to a Signal Construction Company with five commissioned officers and technicians.

These Signal Corps units offer the most favorable opportunity for telephone men to get into that branch of the Army where their ability and training will be most useful. Men possessing the proper qualifications will be granted commissions as Reserve Officers and men not qualified for commission will be classed as Enlisted Reservists and given ratings as sergeants or technicians. All enlisted technicians will receive an additional pay of thirty dollars per month above the pay of privates, after four months of service.

CONSULT YOUR STATE ASSOCIATION SECRETARY for the assignment of a definite unit in your territory and advise him the names of those men interested, so that proper application blanks can be furnished to them. When the cadre of an affiliated unit has been completed, arrangements will be made to have Colonel Henry interview and rate the men for the Signal Corps.

★ **QUESTIONNAIRE FOR** ★

Sponsored Signal Corps Units

(Clip, fill out and send to state association, if any, or to U. S. Independent Telephone Association, Chicago, Ill.)

Name .....
(Print)

Address .....

Birthplace .....

Date of Birth .....

Height ..... Weight .....

1. School or college last attended .....

   Did you graduate? .....

   Highest grade completed or degree ..... Date .....

2. Race .....
   (White) *(Negro)* *(or other)*

3. Telephone experience in years .....

4. Present employer .....

   Present position .....

5. Experience in telephone work .....

6. Other business experience .....

7. Number of stations in exchange where you work .....

8. State any previous military training or experience .....

   (National Guard, Army Reserve, Naval Militia, Navy or Marine Corps Reserves, or other)

   Years served ..... Rank attained .....

9. Are you a member of any military organization? .....

   Branch of service ..... Rank .....

10. Did you ever serve a foreign government in any capacity?

    If so, state which government ..... What capacity? .....

11. Are you a citizen of U. S. by birth? .....

    By naturalization? .....

12. List persons dependent on you, and relationship .....

Date ..... Signed .....
(Usual Signature)

Wire Chiefs TRAINING COURSE

SECTION XI

Cable Construction—Part 2

Subject: *Design of Cable Plant*

(Prepared Expressly for TELEPHONE ENGINEER by the Lincoln Engineering School)

Design of Cable Plant

THE term "cable design" includes the selection of the proper feed route, determination of the number of cable pairs required for present and future needs, selection of conductor gauge to give proper transmission, and the layout and a multiple arrangement which will offer a maximum flexibility in utilizing the cable pairs provided.

Efficient cable design should produce a plan which is economical, adequate, and which conforms to the **fundamental feed plans** which should be set up for every exchange.

The necessity for designing or laying out cable plant is usually based on one or more of the following reasons:

1. Provision of cable to serve a new development in which the anticipated load will exceed that which could be served economically by open wire.
2. Replacement of open wire with cable because of its deteriorated condition or other factors.
3. Replacement or reinforcement of existing cable because of lack of capacity.

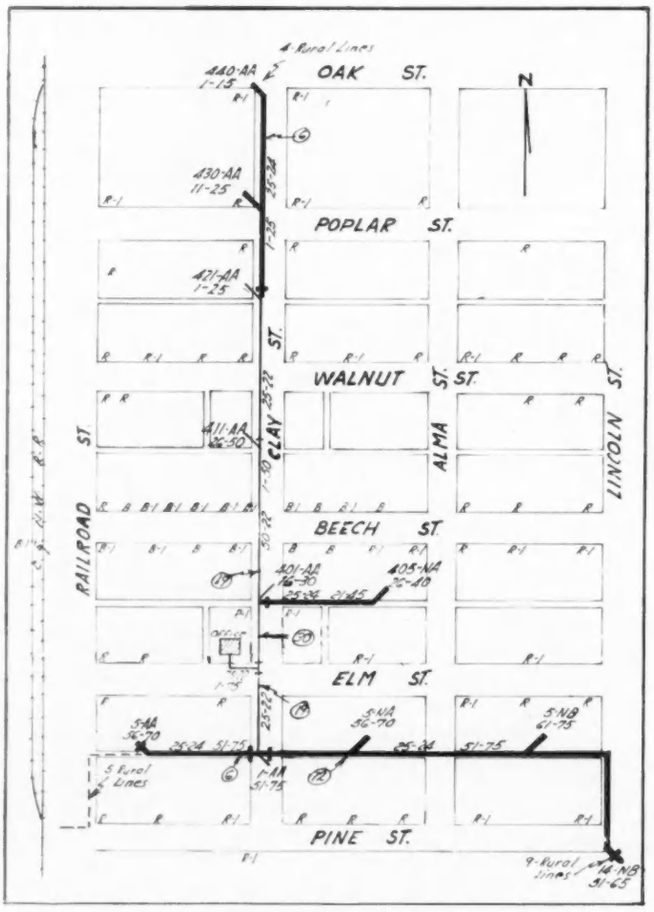


Fig. 1—Combined City Cable and Plat for Use in Cable Studies.

In the large operating companies when cable is required for any of the various reasons listed above, the problem of design is turned over to the Plant Engineer. He collects the necessary data concerning the area for which cable is required and makes a study of the existing load to be served together with a consideration of future probabilities as to direction and amount of expected growth. After he has completed his study and selection of cable sizes, guage, route and multipling arrangement, the proposed cable is incorporated on a map in connection with the existing cable and is then turned over to the construction forces for the execution of the work.

In the small single unit telephone com-

(Please turn to page 48)

"Victory Joints" Conserve Tin

By FRED C. BUERK

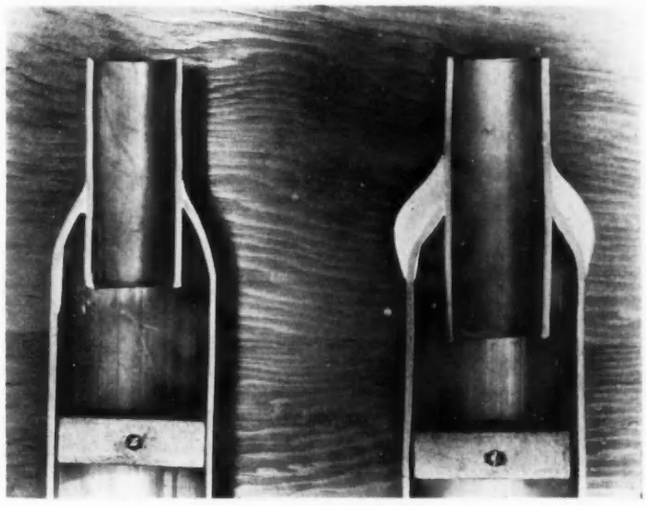


Fig. 2—Left, Victory Joint. Right, old style.

THE cable splicer's willingness to lend a hand in the war effort has been clearly demonstrated by his readiness to conserve tin even though it means changing his long-established technique of wiping joints. The art of wiping joints is an old one, but in all the years since its adaptation to telepone work, it has undergone little or no change. Until recently, from one to five pounds of solder have been used in each wiped joint, depending on the size of the cable and lead sleeve. In the Bell System alone, this has meant a consumption of some 2½ million pounds of solder annually for wiping joints in cable sheath. This solder consists of lead and tin; tin which along with rubber, we are now beginning to recognize as the true riches of the Indies. Normally, 90 per cent of this country's tin comes from Malaya and the East Indies. In fact, three quarters of the normal world supply of tin is produced in Malaya, the Dutch East Indies, Siam and Indo-China, all now under Japanese control.

The solder used for wiping joints contains approximately 38 per cent. tin and 62 per cent lead. Reducing the tin content appreciably below 38 per cent results in porous joints. Consequently, the saving in tin had to be accomplished by reducing the quantity of solder used rather than by reducing the tin content of the solder. Although a substantial reduction in the amount of solder used required a new method of joint wiping and retaining the cable splicers, this change has been made in the Bell System and already its 5000 splicers are wiping these "Victory Joints," in the national interest.

The exterior appearance of the Victory Joint, as evident from Figure 1, is substantially the same as the old style joint. However, a view of the same joints in cross section, Figure 2, shows that the new method effects a remarkable saving in the quantity of solder used. The process of wiping the new joints is not radically different from that followed in making the old-style joint. Although the new joint is an innovation born of war-time necessity, the rapidity with which the cable splicing personnel of the Bell System mastered the new technique demonstrates that it can be acquired readily and that new splicers can be trained in less time than was entailed in acquiring the old technique. From a strength standpoint, laboratory tests have shown that the thin wiped Victory Joint is fully as strong mechanically as its heavy predecessor.

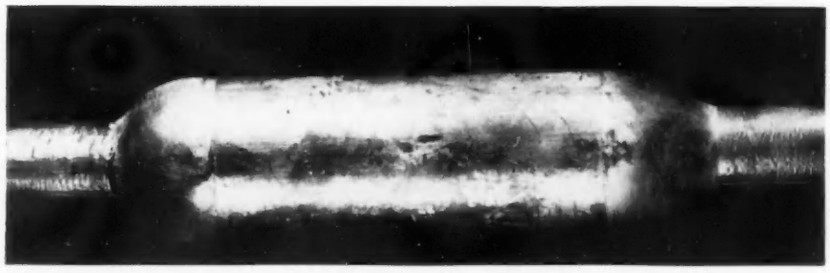


Fig. 1—Right, Victory joint. Left, old style.

Details of New Technique

THE amount of solder required on a particular joint depends on three factors: (1) Shape of beat-in, (2) position of the pasters on the sleeve and sheath and (3) thickness of the solder left on the joint.

The beat-in of the sleeve on straight joints should be rounded and full as illustrated in Figure 3. On Y joints, the beat-in should follow an easy curve to the cable sheath and lead wedge so as to avoid unnecessary depressions that have to be filled with solder.

In beating-in the sleeve, the ends should fit around the cable tightly to prevent the flow of molten solder into the sleeve. The ends should be formd carefully to maintain a uniform spacing from the ends of the sleeve to the pasters.

In the new method, the cable paster is placed around the cable sheath closer to the end of the sleeve than was done in the old method. The paster around the sleeve is placed at the end of the straight portion of the sleeve, immediately adjacent to the beat-in. The pasters on the cable should be placed ¼ to ½ inch from the ends of the lead sleeve as indicated in the table:

Outside Diameter of Sleeve Inches	Distance from Paster on Cable to End of sleeve
¾ to 1¾	¼
2 to 4	⅜
4½ to 6	½

When the pasters are placed, they should be examined closely, using a mirror when necessary, to make sure that the spacing is uniform and that the cable sheath and the end of the sleeve are well cleaned and coated with stea-

(Please turn to page 51)

Samuel L. Tucker re-elected president of the Kansas Association.

Kansas Association Has Good Convention

By H. B. COUCH

THE 42nd Annual Convention of the Kansas telephone people was a busy two days. The attendance was only slightly below normal in spite of rubber shortage and the convention date coming so close to the first of the month. The convention was held April 2nd and 3rd in the Jayhawk Hotel at Topeka.

Directors re-elected were C. J. York, Girard; W. H. Reilly, Topeka; Robert J. Fegan, Junction City, and M. R. Campbell, Wellsville.

All officers of the Association were re-elected. President, Samuel Tucker, Pleasanton; Vice-President, Walter Pedigo, Pratt; Treasurer, Estella Henderson, Pleasanton; and Secretary H. B. Couch, Topeka.

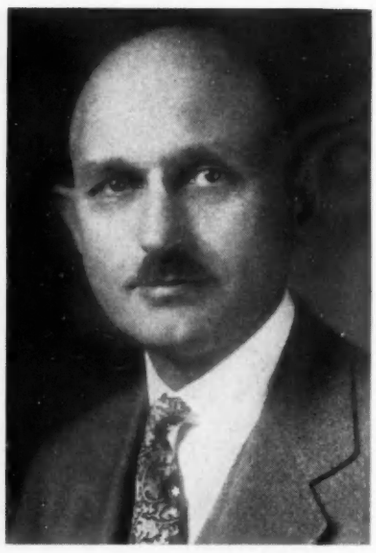
President Samuel Tucker opened the meeting Thursday afternoon with some interesting observations instead of the formal president's address. Mr. Tucker presided at all meetings.

E. J. Farrell, Deputy Collector, Internal Revenue Department discussed the application of the message and service tax. This subject proved to be of general interest as many questions were asked when Mr. Farrell offered the opportunity.

National affairs were covered by Louis Pitcher, executive vice-president, United States Independent Telephone Association. Mr. Pitcher discussed the many problems facing the telephone industry including the proposed increase in federal taxes on telephone service, priorities, rationing and recent wire control legislation. Mr. Pitcher urged the careful reading of the telephone journals for the latest information.

Lt. Col. Wm. Henry, United States Signal Corps and vice-president of the United States Independent Telephone Association, flew in from Chicago to present an address on "The Telephone Industry's Part in National Defense." Colonel Henry explained the workings of the Army Signal Corps units to be formed from the Independent telephone men sponsored by the state associations and individual operating companies. His address was concluded with a film showing "Safeguarding Military Information."

W. H. Whatley, Toll Traffic Supervisor of the Southewestern Bell Telephone Company, conducted the Operators' Voice-personality contest. Mr. Whatley stressed the importance of completing all calls during these times of national urgency. The winners of the contest were: First place, Mrs. Ed Moore, Northern Kansas Telephone Company, Effingham and second place to Miss Lavena Highfill, Surburban Telephone Company, Tonganoxie. More than 40 were auditioned. The judges were Wilbur Naylor, Walter Pedigo, and Mrs. H. B. Couch.



H. B. Couch

THE Annual Dinner followed the Thursday afternoon session. Fred Cross of Wilson presented the Voice-personality trophy to the winner. Tom Collins entertained in his rapid fire manner under the title of "Mental Millinery."

The Friday Morning session was opened with committee reports and election of directors.

Harry A. Neal, special agent of the Kansas Bureau of Investigation addressed the Friday Morning session on the K.B.I., explaining its function and accomplishment as an inter-county law enforcement organization created by the state legislature.

Danger, Live Wires, was shown by Chester Ruth. A film covering many of the points in protection discussed at the school for telephone men at Manhattan last year.

J. A. Gustafson conducted a lively open forum in which free discussion took place on many subjects. An outstanding subject was the matter of training new telephone operators at home, an idea developed and found to be practicable by Walter Pedigo of Pratt.

The convention closed with the election of officers at the directors meeting following the adjournment.

The Kansas Telephone Association wishes to express its appreciation to the telephone manufacturers and supply companies for their cooperation in providing dinner and entertainment for the Class "C" and smaller company representatives.

WE'VE FOUND THE NEW TERMINAL VAULT 3 WAYS BETTER

THE NEW Cook Terminal Vault housing the new Unitlex Cable Terminal requires only one-third the space of old style locker type cabinets. Uniflex efficiency and space conservation are thus combined in the new terminal vault at less than half the cost for old style equipment of the same capacity. There are no warping doors or latches and hinges to get in the way or protrude when the new Terminal Vault is used. The cover section is completely removable and working accessibility is thus brought to the highest possible point. There are no projecting sides on the wall mounting back section and no complicated design details to limit working space or to increase installation difficulties. Attractive and durably finished. Concealed lock. Insulating individual drop knockouts. Close fitting dust proof cable entrances.

1 **The new Terminal Vault costs less than half the price of locker type steel cabinets.**

2 **The new Terminal Vault requires only one-third the space of locker type cabinets.**

3 **The new Terminal Vault can be installed in fewer man hours than locker type cabinets.**

COOK ELECTRIC COMPANY
2700 SOUTHPORT AVENUE : CHICAGO

Both the Terminal Vault and the locker type cabinet shown here house the same capacity cable terminals. This actual photograph shows that the new Terminal Vault requires one-third the space of the locker type cabinet . . . and the new Terminal Vault costs less than half! The new Terminal Vault and Uniflex Cable Terminals are distributed by telephone equipment manufacturers and supply houses.

IT'S FUNNY but most telephone users don't seem to know how much work is involved in providing the top-notch service they enjoy. But most operating men know only too well. • That's why so many of them depend on General Cable Paper Telephone Cable to make the job easier.

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Paper Telephone Cables

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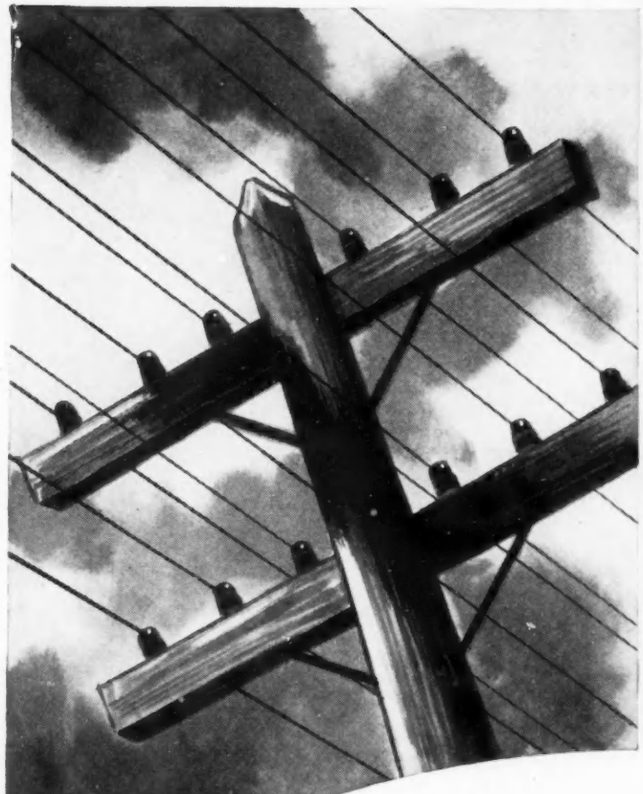

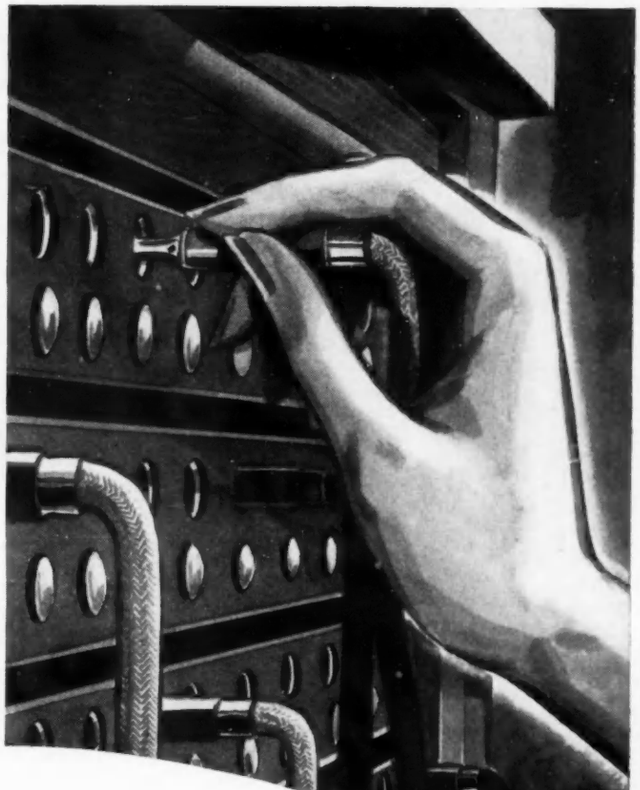

ROEBLING *"completes the call"*

—FROM LINE WIRE . . . TO SWITCHBOARD CABLE

"Operator, I want New York"—or "Los Angeles" or "South America"—and in a matter of seconds, the call is completed.

To the engineers responsible for maintaining this efficient service, Roebling offers the best safeguards against wire and cable failure . . . a century of wire-making experience, thorough knowledge of telephone company requirements and a complete line of the finest wires and cables that modern manufacturing techniques can produce.

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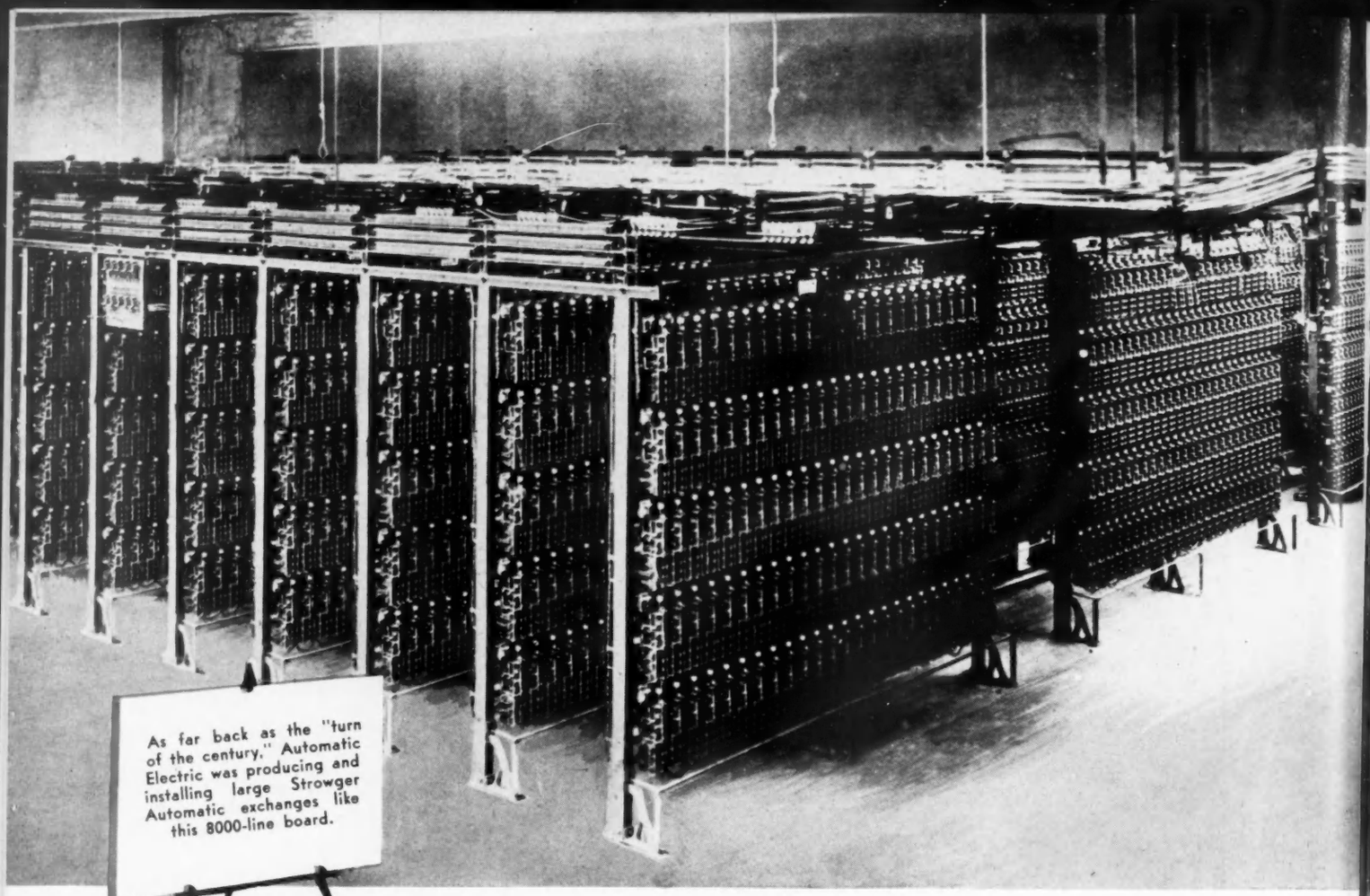
As far back as the "turn of the century," Automatic Electric was producing and installing large Strowger Automatic exchanges like this 8000-line board.

Yesterday's *lessons in*

The users of Strowger Automatic equipment are today benefitting from Automatic Electric's fifty years of experience in the design, manufacture and operation of such apparatus.

For, even before the 1905 installation shown here, Automatic Electric was designing and installing automatic exchanges both large and small, successfully meeting the traffic and operating problems peculiar to each exchange area.

As a result of the lessons learned in those early days, telephone users everywhere are now experiencing a quality of service unknown to them before the coming of automatic

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AUTOMATIC E

ORIGINATORS AND DEVELOPERS OF STROWGER STEP MACH

MAKERS OF TELEPHONE, SIGNALING AND COMMUNICATION APPARATUS

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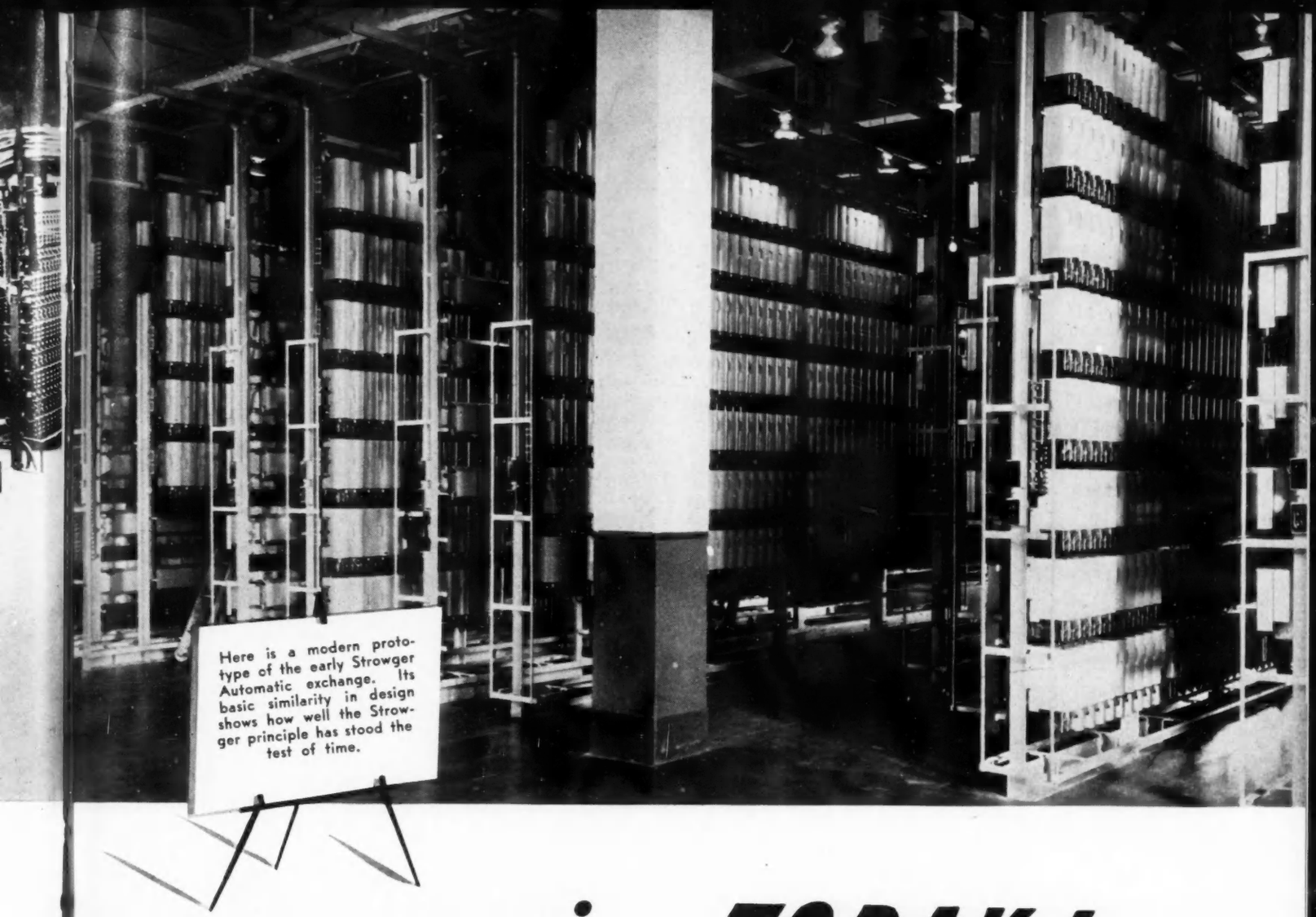
Here is a modern prototype of the early Strowger Automatic exchange. Its basic similarity in design shows how well the Strowger principle has stood the test of time.

Improve service TODAY!

switching. Full twenty-four hour service, lightning-fast response and accurate, machine connections now characterize Strowger installations of every size. The low operating expenses of Strowger Automatic exchanges also contribute materially to the financial stability of the companies owning them. Best of all, under war conditions the unique flexibility of Strowger exchanges meets the changing requirements of traffic with minimum expenditures for new materials when new materials are needed elsewhere for war purposes.

Thus the past is helping the present, in making it possible for today's Strowger Automatic exchange to play a worthy part in maintaining the country's communication system at a high level of performance during the time of greatest need.

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GER STEP MACHINE SWITCHING AUTOMATIC DIAL SYSTEMS

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A POWERFUL RINGING CONVERTER

Has Proven Its Efficiency Under Most Severe Operating Conditions

Sub-Cycle is built for heavy duty—requires no routine maintenance—cannot interfere with radio reception—is economical in operation—and quiet—output voltage regulation between no load and full load is very close. In it there are NO MOVING PARTS TO ADJUST.

MANUFACTURED IN SIX MODELS FOR LOADS RANGING FROM SMALL PBX TO THE LARGE CENTRAL OFFICE

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ALSO PULSATORS

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Sold by Leading Distributors

THE LORAIN PRODUCTS CORPORATION
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PROTEK-SORB DESICCANT

MEETS THE NEEDS OF YOUR MAINTENANCE DEPARTMENT

Protek-Sorb Desiccant assures trouble-free cable splices because it dries them FASTER, EASIER and BETTER! Protek-Sorb has more than twice the moisture-capacity of other desiccants—assures a quicker return to normal insulation resistance. Does away with dangerous "boiling-out" and time-wasting "oven-drying". Your regular jobber can supply you.

THE DAVISON CHEMICAL CORPORATION
Industrial Sales Department
BALTIMORE • MARYLAND

Preventative Maintenance As A Conservation Measure

(Continued from page 26)

Small size 24 and 26 guage cables do not need sleeve supports but the larger sizes do.

Cable Corners

POORLY constructed corners are sure to cause trouble. Even though adequate slack may be left in a cable on a corner, there is a tendency for the cable to "creep" away from the corner resulting in the cable being pulled tight against the rings and an eventual sheath break. The remedy is to pull adequate slack so that a well rounded corner results and if there is a downgrade away from the corner pole, then **grade clamps** should be used.

Typical well made pole and "aerial" corners are shown in Figure 5 and 6. Cable corners made like these will not cause trouble.

One of the most common sources of cable trouble is lack of grade clamps. Failure to provide grade clamps results in the cable creeping down grade causing bowing and undue strain at supported sleeves. Grade clamps should be placed every four to six poles as shown in Figure 7 where there is a steep grade.

Protection from Trees

THE chief cause of cable sheath failure is lack of clearance or protection from trees.

Cable, like drop wire, does not get along well with trees (see Fig. 7-A). If tree limbs (small or large) are allowed to rub against the cable, the cable sheath will eventually crystalize or break due to the more or less constant vibration of the trees. Even though the limbs touch only the messenger, they will in time ruin the cable.

The real remedy is of course to trim the trees so that plenty of space is provided around the cable. The cable and messenger are not large and it is seldom difficult to get adequate clearance by trimming. Where this is not possible, then the cable can be given some protection by enclosing in wood molding as shown in Figure 8.

Cable Terminals—Loose Poles

POORLY installed cable terminals will result in sheath breaks and service interruptions and deserves special attention. Be sure that ample slack is provided for a neat bend as shown in Figure 9. The terminal leg should be neatly cleated to the pole and placed in such a position on the pole as to minimize danger from gaffing.

Missing rings which result in cable being unsupported for a part of a span may cause trouble and such conditions are readily observable and easily corrected.

Poles which are broken off or loose in the ground should not be permitted in a cable lead as the constant swaying of the pole and messenger will result in eventual crystallization of the cable sheath. Cable should be so placed that it does not rub against buildings or electric poles for unless the cable is free to move with the messenger, it will eventually crack at point of contact.

Sheath Inspection

EVEN though properly constructed to start with, a cable plant needs periodic inspection to insure that conditions which would adversely affect the life of the sheath are corrected. It should not be difficult to make this periodic inspection each year. The inspection can best be made by walking along the route of the cable. Locations at which work is required are marked on a cable map and after the inspection is completed, the necessary repairs should be made. Some plant managers prefer to make their repairs at the same time as the inspection. With a two-man crew, this is usually a better arrangement than making a complete inspection before starting repair work.

The inspection should consist of looking for sheath damage due to ring wear, crystallization due to vibration, cracks and breaks from tree limbs, etc.

Temporary Sheath Repair

WHERE cracks or bad ring cuts are found and where it is not necessary to remove the sheath, a temporary repair can be made by wrapping two reverse layers of friction tape over the crack and for two inches on each side. The tape should then be painted with asphalt paint. A repair of this type will last for several years.

Where a cable is badly damaged in a number of different places, the tape repair method will enable a cable to be maintained in service. Where only a few breaks are involved trouble sleeves should be placed.

The arc repair method has been successfully used in repairing severe damage from ring cutting.

Where it is necessary to open a cable at a sheath break in order to boil out moisture, the sheath should be removed with a cable knife and the core thoroughly boiled out the parafine. The opening should then be closed by placing two layers of muslin strip tape over the core, and this should then be followed by two layers of friction tape. The taped core should then be fastened to the messenger as shown which will help shed the rain.

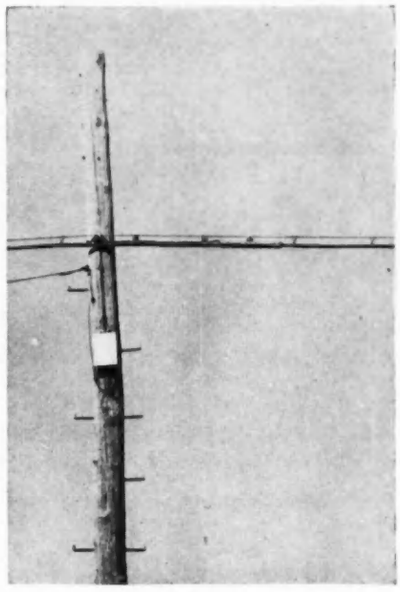


Fig. 9—Properly Installed Cable Terminal.

Fig. 8—Protection of Cable from Tree Damage by Use of Wood Molding.

Conducted by B. C. BURDEN, Technical Editor

Line AND Desk

Q. Should the pole gain be cut on the inside or outside of the bend.

A. The pole should be gained on the inside of the bend as shown in the figure.

Q. What is meant by "zero reference level" as applied to transmission?

A. "Zero reference level, is a telephone "bench mark" to which the transmission voice level can be referred. It is considered as .006 watts and this represents roughly the power output of the older types of 24 volt common battery telephones. It is customary to express power levels in decibels referred to the zero reference level of 6 milliwatts. For example, if the power output of a telephone were 12 milliwatts we would say it had an autput of +3 decibels inasmuch as doubling the power is equivalent to a change in power of 3 decibels.

Q. What are the values for an H type ohm 20 db pad suitable for use in a transmission test circuit?

A. See Figure 1.

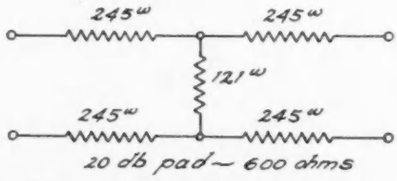


Fig. 1—20db Transmission on Network.

Cable Testing

Q. Does the resistance of a ground fault affect the accuracy of a Varley Loop measurement?

A. The resistance of the fault itself will not affect the accuracy of the measurement provided it is not much in excess of 100,000 ohms. This is the primary advantage of the Wheatstone Bridge, namely, that the fault resistance appears in the common arm of the bridge, hence within limits will not affect the accuracy. Accurate results can be obtained even with fault resistance as high as ½ million ohms.

Q. Can the simple Varley fault location method be used in locating a ground on a cable pair if it is impossible to get a good wire in the cable and it becomes necessary to use an open wire which is carried on the same pole line as the good test wire.

A. The simple Varley method cannot be used under the circumstance where the good and bad wires have different resistances. You should use the three Varley method where it is necessary to use wires that are not located in the same cable, hence are not of the same resistance as the bad wire. The three Varley method will give extremely accurate results.

Q. What is the correct feet per ohm value to use in fault location work and how can these values be corrected for temperatures other than 68° F.

A. The table shown below gives the feet per ohm values for the three most common sizes of cable.

Cable Guage	Feet per Ohm Per Conductor	Ohms per 1000 Ft.
24	38.96	25.67
22	61.96	16.14
19	124.20	8.05

If the temperature is above 68° F determine the true feet per ohm by multiplying the number of degrees above 68° x 0.00218 and subtracting from the feet per ohm value for 68°.

If the temperature is less than 68° F. multiply the feet per ohm at 68° F. x 0.00218 x the number of degrees less than 68 and then add this to the feet per ohm at 68° F.

Q. What is the standard transmission reference system?

A. The standard reference system consists of two subsets connected together through an artificial line. The efficiency of the subsets is such that when loss equivalent to approximately 30 miles of cable are cut into the circuit the resulting transmission path of a person talking in a normal tone on one telphone can be heard satisfactorily on the other according to toll standards. Such a system is used in rating the various parts of a telephone talking circuit.

Q. Please explain the terms low-pass and high-pass filters in carrier systems.

A. A **low pass filter** is one that will pass all frequencies from zero up to some critical value which is referred to the cutoff point of the filter. A **high-pass filter** will pass all frequencies from infinity down to the cutoff value. Such filters are used to separate carrier and voice frequencies in a carrier telephone system.

EAST BRADY, PA., ENJOYS NEW STROMBERG-CARLSON

RELAYDIAL INSTALLATION

Typical of Stromberg-Carlson RELAYDIAL installations is the new one at the East Brady Exchange of the Kittanning, Pa., Telephone Co. The equipment, which replaces the Company's old magneto service, consists of 150 lines, 15 links, 4 trunks to near-by Kittanning and 1 to Rimersburg.

The new Stromberg-Carlson RELAYDIAL Switchboard serves approximately 276 stations and provides the community with the most modern dial-operated telephone service.

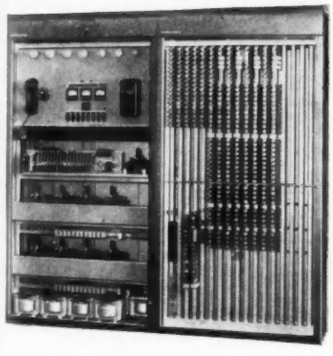
The equipment is arranged to provide 10 party full selective service and unlimited reverting calls.

The relay switching equipment is housed in dust-proof steel cabinets with an attractive beige finish. Relays are the sole means of switching and are of the efficient but simple No. 500 and No. 700 Stromberg-Carlson type.

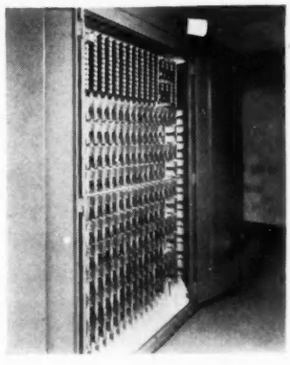
Stromberg-Carlson engineers will gladly provide you with suggestions for a RELAYDIAL installation to meet your requirements.

STROMBERG-CARLSON TELEPHONE MANUFACTURING COMPANY
Factory and General Offices: 100 Carlson Road, Rochester, N. Y., U. S. A.
Branch Offices: Chicago Kansas City San Francisco Toronto

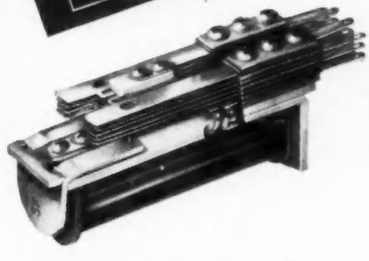
Floor Plan East Brady, Pa. Exchange



Front View RELAYDIAL Cabinet



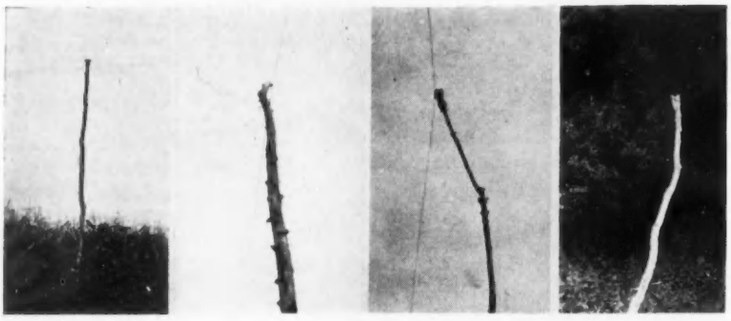
Part of the East Brady, Pa. Equipment



Stromberg-Carlson No. 500 Relay: Mechanical parts have been reduced to a minimum, consisting of a one-piece frame and coil, a one-piece angle type armature, a self-contained coil, and a one-unit contact spring assembly.

Stromberg-Carlson No. 700 Relay: A multiple contact relay with 36 "make" contacts arranged in 3 groups of spring combinations — each group a separate assembly. The armature is held securely in place on the inner frame by a T-shaped retainer adjusted to permit the armature to act freely.

Stromberg-Carlson



Temporary poles are dangerous to the public and employees making repairs.

Rural Telephone Problems Solved in Minnesota

(Continued from page 28)

In addition to this demonstration board and exhibit panels, there is introduced a few panels of advertising as to the value of the telephone.

In cooperation with the Supervisor of Telephones, Mr. A. N. Fancher of the Minnesota Railroad and Warehouse Commission, and Mr. J. W. Howatt, Commercial Representative of the Northwestern Bell Tel. Co., Mr. Crowley has held several meetings with farmer groups at Bricelyn, Elbow Lake and Aitkin, Minn. Here is a brief outline of one of these demonstration meetings.

On receipt of a request by the management of an operating exchange company to hold one of these demonstration meetings, a list of the farm line companies is secured by the Association giving the line numbers. Then the officers of these farm line companies, as well as the subscribers served on these lines are notified as to the time, place and date of the meeting.

Subjects discussed are:

1st—The importance of the right kind of poles to be used in the interests of safety and long life. (See pictures of some kinds used.)

2nd—The importance of proper ground rod connections for lightning discharges and contact with high voltage lines. (See exhibit panel.)

3rd—Safety working conditions for employees and the telephone using public.

4th—Proper and safety in guying poles as to stubs and anchors, and necessary clearances from and above highway travel, as well as clearances across railroad right-of-way.

5th—Tree trimming and brush clearance.

6th—The importance of all insulators being in place.

7th—Importance of using batteries designed for telephone purposes.

8th—Inspection of substation sets, generator, transmitter and receiver cords.

9th—Resistance in iron wire due to faulty joints and corrosion.

10th—The importance of using compression sleeves instead of hand joints in all old and new wire.

11th—The importance of fuse and carbon protection at all substations.

Secretary Crowley advises us that he and his fellow co-workers aim to be on hand some hours prior to these meetings, and arriving at the exchange they proceed to test the line resistance and measure the noise levels of the lines under consideration.

In some instances they have photographed pole and line conditions and by the use of a projector they show upon the screen actual conditions that they have found, much to the surprise of those who are responsible for the upkeep of the service.

We are reproducing some photographs as to poles, trees and wire conditions found.

Meetings will be held at several points throughout Minnesota during the present year to acquaint those who own and maintain these lines as to what must be done to assure to those being served by these lines a reliable and adequate service upon which they can depend.

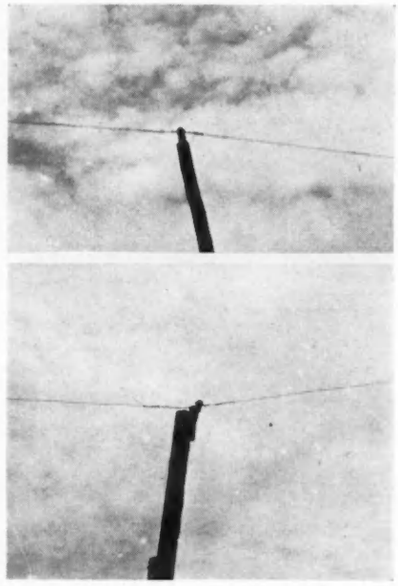
It is noted with much pleasure that improved telephone service has resulted wherever these meetings were held. The farmers are quite interested and in many cases the accumulation of these troubles have been permitted due to lack of knowledge and experience in the telephone business.

It is a simple matter for a group of farm line companies to have a meeting of this kind as all that is necessary is for them to notify the local exchange to which their lines are connected.

In discussing the subject of these meetings with Secretary Crowley he advised us that once these lines have been properly reconstructed, and circuits balanced to overcome the inductive disturbances, it is hoped that each of these companies or groups will increase the amount of their annual assessment so as to provide not only for the current annual maintenance of these lines, but in addition thereto, provide a few cents per month per station towards a depreciation fund for replacements and betterments. Had this policy been followed in the past, the cost of rehabilitation would not be as great as it appears to be today.

On the other hand these farm line owners must understand that while it appears to be a costly job to reconstruct these lines today, they have received a very economical telephone service for many years past, and a reinvestment of the necessary funds to reconstruct these lines today will assure to them a reliable and adequate service for many years to come.

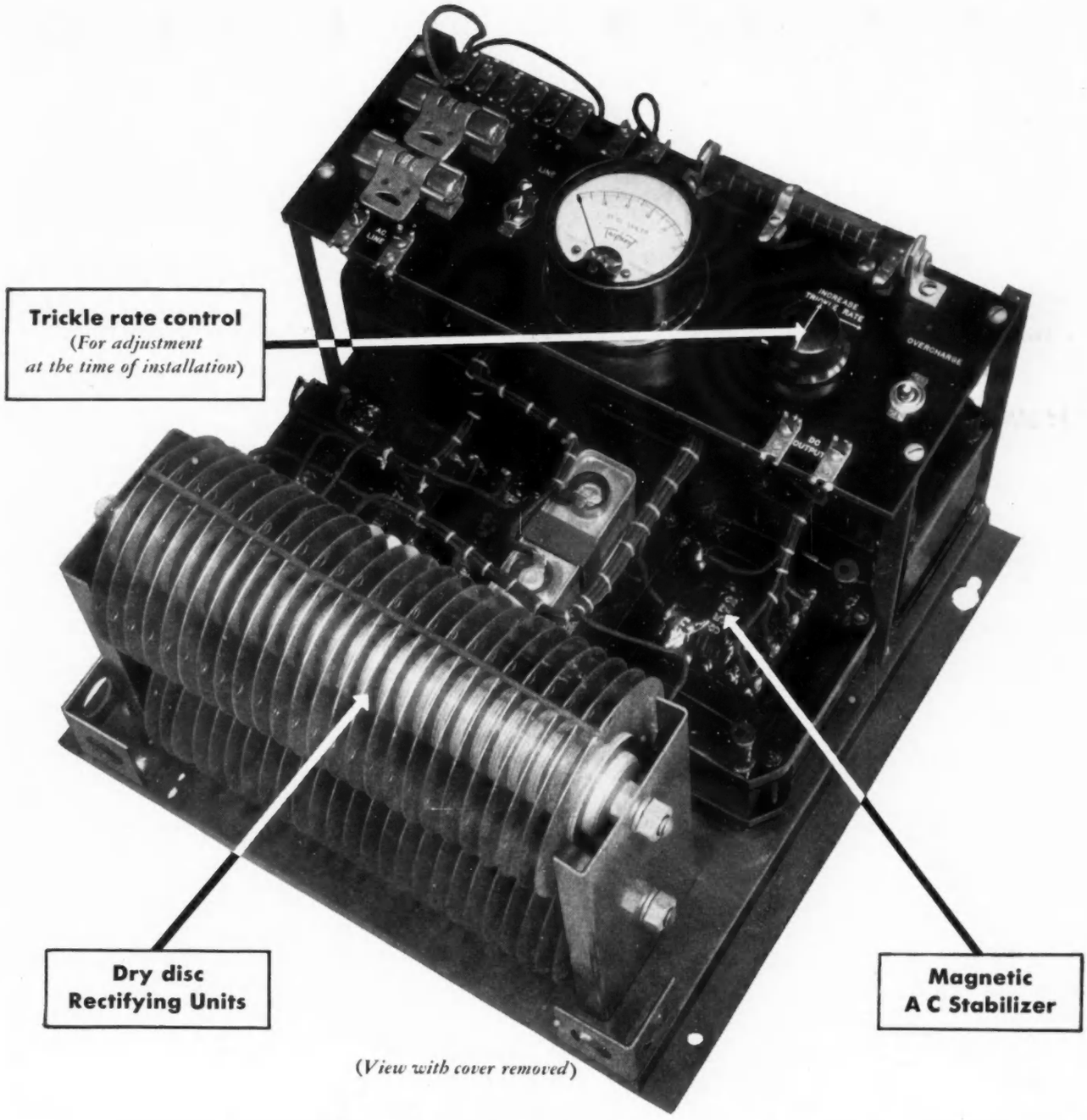
END.



High resistance points mean poor transmission and poor signalling.

Fire Damage

A blaze at the switchboard of the Eastern Telephone Service, McConnelsville, Ohio, suspended service recently. The fire was discovered by a volunteer fireman and his prompt action in calling others to assist caused the damage to be comparatively slight. Service was resumed quickly.



(*View with cover removed*)

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PLUG 'em in — go away and forget 'em. What a pleasure it is to use a battery charger without moving or expendable parts. Nothing that requires frequent adjustment.

The ingenious design of the Raytheon RectiChargeR enables its output to follow the load and assume full responsibility for keeping your storage batteries fully charged, neither burning them up by overcharging nor starving them by undercharging.

Battery life may be increased as much as 40%.

Operating difficulties such as under and over voltage, short lamp life, incorrect ringing and sticking relays are automatically eliminated.

RAYTHEON MANUFACTURING COMPANY
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Please send your illustrated literature on Raytheon RectiChargeRs.

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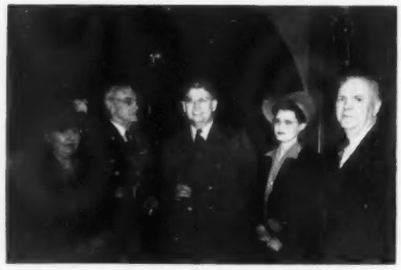
10TE

A speakers group that is unique. All are directors or officers of the USITA and each was a speaker at the Iowa association. (L. to R.) John H. Agee, Louis Pitcher, Chas. C. Deering, R. A. Phillips and Lt. Col. Wm. C. Henry.



Mrs. M. R. Thompson, Major DeWitt, Mr. Thompson, Miss Dorothy Hickman and Mark E. Gants. All except the Major are from the Central Iowa Tel. Co., Toledo, Iowa.

Iowa Association Meets in 47th Annual Convention

A recent attendance of approximately 400 telephone men and women attended the 47th annual convention of the Iowa Independent Telephone Association at Des Moines, April 7, 8 and 9. C. F. Morrison, general manager of the Iowa Continental Telephone Co., Grinnell, was elected president to succeed R. A. Phillips, vice president of the Central Electric & Telephone Company, Sioux Falls, S. Dak.

The heavy attendance was a pleasant surprise to association officials and they were amply repaid for their efforts in preparing a program that proved of much interest to those present. Naturally the main subject was of the war effort of the telephone industry plus the problems war time economy would have on their business. The address of the retiring president, Mr. Phillips, was a highlight of the program.

Mr. Phillips described to the convention the change made in the telephone industry by our war efforts. In describing the various government bodies now having to do with the industry he outlined the importance of the Defense Communications Board that operates under the War Production Board. He said: "Parts of this great (war) machine include a division more directly pertaining to our industry known as the Defense Communications Board, which to a great degree has overshadowed even the work of the Federal Communications Commission. To emphasize the importance of this unit is only to be reminded of the amendment recently added to the Federal Communications Act, providing that, when deemed necessary for the successful prosecution of the war, the DCB can take over actual control and operation of any communication facility in the country."

He credited the Independent associations of having the very best of representation in Washington and explained that new conservation and priority orders were expected to be issued at any moment. He also explained the actions of the committee on toll compensation and their success in that effort.

At the same session secretary treasurer Chas. C. Deering made his report to be followed by an address by Rabbi Louis Cashdan, Cincinnati, O., entitled "Inside Embattled Britain."

On the morning of the second day R. V. Harman of Des Moines talked on the duties of the F.B.I. immediately following the scheduled motion picture "Defense and the Telephone". The feature address of this session was by John H. Agee, vice president and general manager of the Lincoln (Nebr.) Tel. & Tel. Company.

The afternoon session started with an address by Arthur Brayton, secretary of the Des Moines convention committee who spoke on "Increasing Public Relations".

In addressing Iowans on "National Affairs" Louis Pitcher, executive vice president of the United States Independent Telephone Association, outlined the activities of the national association and gave information of the nation wide aspect of the industry. It will be recalled that his prognostications delivered to the Iowa association convention last year have been borne out to a great extent.

Major C. B. DeWitt and retiring president R. A. Phillips seal a friendship.

Lt. Col. Wm. C. Henry, who is serving as liasion between the Independent companies and the Signal Corps and now on active duty with the Signal Corps, was the last speaker of the afternoon session and spoke on "The Telephone Industry's Place in Army Communications". He outlined the affiliated units that Independents are sponsoring through the state associations and the large operating companies. (This is discussed on page 29).

The banquet entertainment and dance was held that evening. Among out of state visitors we noticed Mrs. Henry, who joined Colonel Henry in time for the entertainment; Mr. and Mrs. G. M. Dwelle, Lake City, Minnesota; J. C. Crowley, Jr. secretary of the Minnesota Association, and Herb Couch, secretary of the Kansas Association, who was quite proud of the $5 in Defense Stamps won as an attendance prize.

A very active Open Forum was held the morning of the last day with all in the convention hall participating.

The Operators' Conferences were in charge of Miss Anne Barnes. Heard on the Conference program were: Mayme Workman, Springfield, Ill.; Grace Coan, Denison, La.; F. R. Karr, Des Moines, and Minnie Francis, Ft. Dodge, and Hester Ballard, Des Moines, who were discussion leaders at the Open Forum held the afternoon of the 8th and the next morning.

General Reports Gain

General Telephone Corporation reports for its subsidiaries a gain of 2,217 company-owned telephones for the month of March, 1942 as compared with a gain of 4,097 telephones for the month of March, 1941. The gain for the first three months of 1942 totals 8,028 or 1.39% as compared with a gain of 11,584, telephones or 2.18% for the corresponding period of 1941. The subsidiaries now have in operation 587,187 company-owned telephones.

THE PIONEER'S CORNER

Why were fraternal orders, societies, clubs-political and otherwise organized?

The writer pays dues in seven organizations, not for any financial benefit, but to enjoy the full fellowship with the members, to be associated with people of character, and with people of the same occupation or interest.

The Pioneer association was organized for the purpose of binding together Independent telephone men and women, and to perpetuate the ideals and traditions of Independent telephony. It is a mark of distinction to be a Pioneer, a pleasure to share in its activities.

Aside from the honor and distinction of being a member, the association makes it well worth while. The benefits are out of proportion to the annual dues of $3.00.

Each member receives an accident insurance policy, when dues are paid in advance. Also receives a bound volume of, "History of Independent Telephony"; a bronze and blue badge, and a copy of the annual roster.

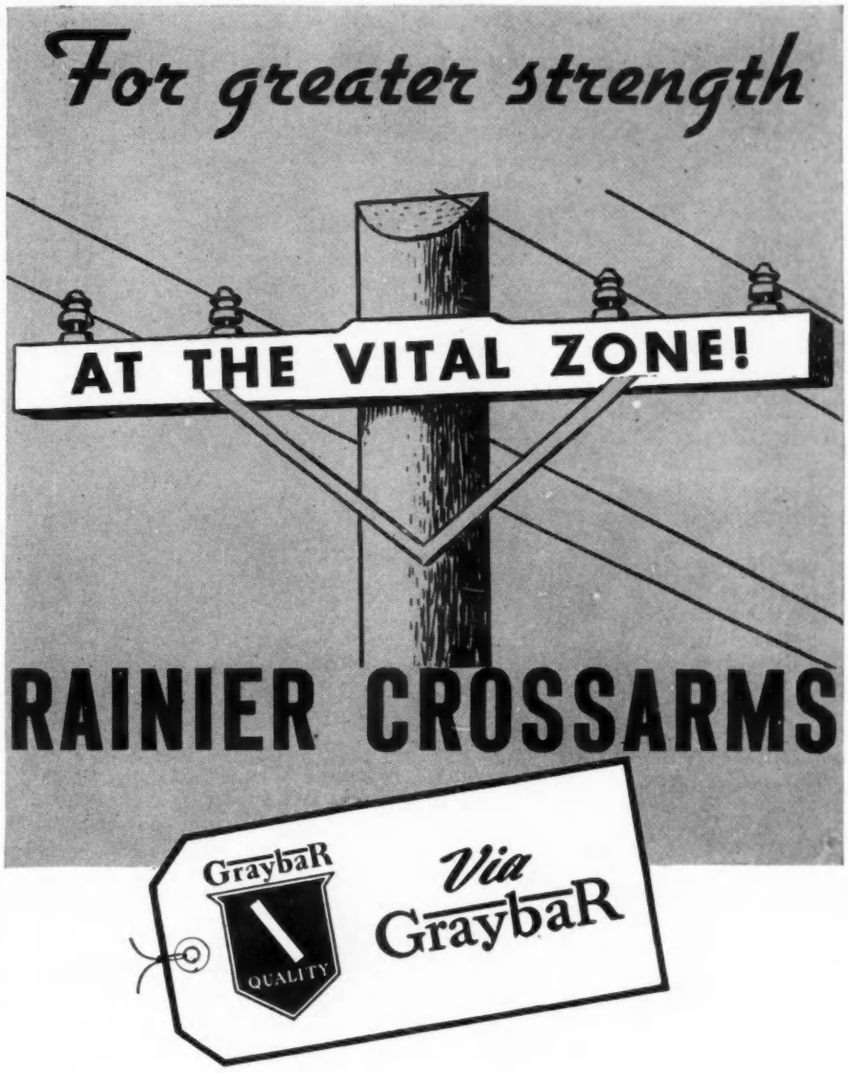
In 1941 nineteen members received benefits from the free accident insurance policy, ranging from $10.00 to $500.00.

Have we the proper reverence for a Pioneer? You will find monuments all over the United States to Pioneers who went before to prepare the way. They fought the battle of invasion into a new territory or a new industry—and they won. All these held the Pioneers together through the years of struggle, work and worry, with a feeling of pride and satisfaction of a job well done.

You can secure application blank for membership by writing J. K. Johnston, 632 Lemcke Building, Indianapolis, Indiana.

A Pioneer.

(Editors Note—Every Independent telephone man eligible to become a member of the Independent Pioneers should do so. We are making this column "The Pioneers Corner" a permanent feature of this magazine and invite you Pioneers to make full use of it.)



The "vital zone" supporting today's essential lines of communication needs seasoned strength and long-lasting performance. Rainier Crossarms have the uniformity that saves time in erection, and the field-tested ability to hold up under ice and wind loads, storms and other emergencies.

Rainier Crossarms are made of clear Douglas Fir. Scientific control of seasoning adds to the natural strength of the wood. They are practically moisture- and rot-proof. Your GRAYBAR Man can also supply Rainier pins, brackets and other wood pole-line accessories. In fact, he can fill any of your requirements from the "top of the pole to the bottom of the hole".

So, next time you need pole-line items, remember GRAYBAR. You'll get quality products and cooperative service no matter how large or small the item.

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in over 80 principal cities
Executive Offices:
GRAYBAR BUILDING, NEW YORK

GraybaR QUALITY
Distributed by GraybaR ELECTRIC COMPANY
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Personals from the Field

It is now **Lt. Col. L. D. Densmore** as he has just been promoted from the rank of major. He was general commercial manager of the Central Electric & Telephone Co., Sioux Falls, S. Dak. before reporting for duty with the Army. He is now stationed at Headquarters Western Defense Command, Presidio of San Francisco.

•

Mark A. Saunders, connecting company agent of the Southwestern Bell at Oklahoma City, is celebrating his 43 years of service with his company by announcing his retirement. He was recently honored by a dinner by fellow employees. Mark is well known to Oklahoma Independents and served on association matters in the Oklahoma Telephone Association.

•

Robert E. Nielsen, manager of the Ringsted (Ia.) Telephone Company, reported in a recent annual meeting of that company that about one half of the company's 14 rural lines were metallized and the other half now being completed. The company serves 337 stations.

•

John Britton, plant superintendent of the Union Telephone Co., Owosso, Mich. has just completed 40 years of service to the telephone industry. He started as a cable splicer.

•

Lawrence Harrington, manager of the Leoti (Kan.) Telephone Company has enlisted in the Signal Corps and reported for duty March 17.

•

George W. Behner of the Ohio Bell has been named general plant employment supervisor. He was formerly district plant supervisor at Akron, O., before moving to Cleveland.

•

Russel Jerry, formerly with the Lake Region Telephone Co. in Minnesota and now in the U. S. Army, is now serving in foreign service.

•

Earl Baxter is the new manager of the Waverly, Kan. exchange of the Central Kansas Telephone Co. He had been stationed at Moran, Kan. He succeeds **Harley Cox,** resigned.

•

Glen Emmons has been named manager of the Union Telephone Company exchanges at Wausau and Osmond, Nebraska.

Lieut. P. M. (Pete Jr.) Ferguson, son of **P. M. Ferguson of Mankato, Minn.,** and for the past two years sales engineer in Minnesota for the American Automatic Electric Sales Co., left for Fort Monmouth, N. J. Easter Sunday for a short training period before being assigned to active duty. Pete has been made a 2nd Lieutenant in the Signal Corps and will be no stranger to army life as he was captain of his company at Shattuck Military School when he graduated. He is also a graduate Electrical Engineer of the University of Minnesota.

•

Captain Harlan W. Holmwood, secretary and treasurer of the Associated Telephone Company, Ltd., of Santa Monica, Calif., reported last month to Seattle, Wash., for active service in the Army Air Corps. He has been a reserve officer since his graduation from the University of California. We also knew **Harlan** as one of the editors of the Associated Circle when it was first published several years ago. While he is absent his duties at Associated will be performed by **R. K. Chase,** assistant secretary and assistant treasurer.

•

C. W. Banes, organizer of the Scott County Telephone Co., Winchester, Ill., died at Passavant Hospital, Jacksonville, Feb. 22. Mr. Banes was manager at Winchester for more than twenty years and after the property was sold to the Illinois Telephone Co., he became storekeeper for the latter company at Jacksonville in which capacity he served for ten years. At the time of his death he was in the wood-finishing business at Winchester.

•

David Shavitch, telephone engineer, has informed us he survived Pearl Harbor and is now working on civilian projects in the Hawaiian Islands. He visited TELEPHONE ENGINEER offices last summer after 8 years service in various foreign countries.

•

R. Cree, 49, manager of the Green, Kan. Telephone company 24 years, died recently. He is survived by his wife; a daughter, Mrs. Lyndon Moore, Clay Center; and a son, Morton Cree, Kansas university student.

•

Robert G. Seaks, assistant to **FCC Chairman Fly,** enlisted in the Navy Mar. 30 with the rank of Lieutenant (j.g.). He will be stationed at Philadelphia.

•

M. C. Holmes, district supervisor of the Ashland Home Telephone Company's Lancaster, Ky., exchange for the past 11 months, retired during March because of ill health.

•

In spite of the **L. Y. B.** (little yellow bellies) TELEPHONE ENGINEER'S students in Hawaii are sending in their examinations of our Wire Chief's Training Course. A recent set of examinations from **Mr. S. Smiddy** of Honolulu reached us in a relative short time after being mailed.

•

Oliver C. Agne and **Stephen Fred Meade** have joined in joint application with the Missouri Union Telephone Company for permission to buy the exchanges at Troy, Hawk Point, Moscow Mills, O'Fallon and Wentzville, Missouri, from Missouri Union.

•

A. J. McInnes, secretary treasurer of the North Dakota Telephone Association, has announced pre-convention plans of that association scheduled for June 9 and 10. The convention will be held in Grand Forks this year.

•

Art T. Renn, connecting company representative of the Illinois Bell, has been appointed a member of the Illinois Telephone Association Defense Committee by **J. I. Kennedy,** association president.

•

Nelson Sosh succeeds his father as manager of the Uniontown (Ky.) Telephone Company following resignation of **Mr. Sosh,** senior, because of ill health.

Eliot H. Cheadle, vice president of the Associated Telephone Company, Ltd., Santa Monica, Calif. is an amateur photographer of no mean ability. His pictures have been used numerous times by the Associated Circle as front pages, and hobby lessons on the art have been authored for the magazine.

•

Frank L. McKinney, secretary of Ohio Independent Telephone Association, was in Chicago recently attending the meeting called by the national association to plan on affiliated Signal Corps units with **Lt. Col. Wm. C. Henry.** Besides predicting a larger convention than ever for his association on April 21 and 22 at Columbus, **Frank** ordered questionnaire blanks and notified **Col. Henry** that his association would complete a full cadre for the Signal Corps units being formed. The Association will sponsor it.

•

Guy A. Draper, president of the Monroe County Telephone Co., of Ellettsville, Ind., was killed on March 2 in an automobile-truck collision. **Mr. Draper** has been in the telephone business several years and managed several plants in Monroe and Owens counties.

•

Roy Peterson, formerly with the West Coast Telephone Company, Everett, Wash., has been made a Captain of the Signal Corps. He is stationed at Camp Cook, Lompoc, Cal.

•

Raymond C. Dodd, 58, manager of the Oak Harbor exchange of the Northern Ohio Telephone Company, died during February from a heart attack. Although in failing health his death came unexpectedly.

•

Seen in a recent issue of **Crosstalk,** magazine of the West Coast Telephone Co., Everett, Washington. "Miss———, 11 Rears—(a service record!!)

•

Lt. Col. J. C. Grable, U. S. Army Signal Corps has just been promoted from the rank of major. Attendants at the past two national conventions remember him as one of the principal speakers.

•

D. T. Strickland, Brownwood, Texas, explains the big grin on his face these days to the new automobile recently delivered to him. Yep, he really ordered and paid for it last December.

•

Jack Arney, manager of the exchange at Albert City, Iowa, pulled a fast one on his friends recently. He introduced Mrs. Arney, chief operator at Marathon, Ia., as his bride of over a year.

Northwestern Bell Increases Rates 15% in Iowa

A 15 per cent raise in local Iowa telephone rates and toll calls within the state was announced April 8. The increase becomes effective on local service "with the next bill" and on toll calls after April 9. Substantially higher wage and material costs and greatly increased taxes were given as reasons for the increased rates.

The Iowa Independent Telephone Association was in session on the day the rate increase was made. According to newspapers the secretary of the Iowa association, Chas. C. Deering, when informed of the increase predicted that many Independent companies in Iowa probably will increase their rates within the next sixty days.

Telephone rates are not subject to state or local governmental supervision in Iowa.

Purchases Oregon Exchange

The Timber Telephone Company of Timber, Oregon was recently purchased from Mrs. Mary Turley by Mr. and Mrs. John Shriner. Mr. Shriner was formerly the electrical maintenance engineer for the Oregon-American Lumber Corp. at Vernonia, Oregon. Mrs. Shriner will be the day operator and bookkeeper.

Buys Ohio Exchange

The Ohio commission has authorized the Ohio Standard Telephone Company to sell, and the Northern Ohio Telephone Company to purchase, for $3000 and to capitalize by selling at par $3000 5% preferred stock, the Fireside, O. exchange of the former except substation apparatus, central office telephone equipment and real estate.

UNINTERRUPTED SERVICE

with Non-Grounding Rare Gas Arresters

Used for many years by leading Railroads for vital Telephone, Telegraph and Signal Circuits.

Type MCD (illustrated) interchangeable with your present carbon block protectors.

Write for Catalog 39-A describing
Arresters Anti-Noise Relays
Terminal Strips Potheads Housings

L. S. BRACH Mfg. Corp.
55-63 Dickerson St. Newark, N. J.
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Wire Chief's Training Course

(Continued from page 30)

panies where the Wire Chief or Plant Manager together with a lineman or two constitutes the entire organization, the problem of cable design is necessarily confined to those in charge. This section of the course is written to help the small plant manager rather than to describe methods used in a large metropolitan area where trained specialists are assigned to lay out cable plans.

Design Steps

IN order to clarify the methods used in the design of cable plant in the small or medium sized exchanges, the subject will be presented in steps representing the sequence of an actual cable study made on a small telephone exchange.

It is necessary at the outset of the study to have a cable map showing the existing cable and terminals and a **city plat** showing block outlines. In the small exchanges the cable and city plat maps can be combined, as shown in Figure 1.

In the exchange used as an example the open wire feeds from the end cable terminals were in bad shape and had to be replaced. A cable study of this plant was therefore desired to determine if the open wire should be replaced with cable or wire, and also to check the capacity of the existing cable so that any necessary replacements or cable reinforcements could be made in connection with the open wire rebuild.

Preparation of House Count Map

THE first step in the study was to compile a **house count map.** This information is shown on Figure 1. The approximate location in the block of all houses are shown by the code as R, R_1, B and B_1, to indicate business and residence subscribers and class of service. It is the practice to distinguish between houses that are vacant and those occupied but without telephone service.

The purpose of the house count map is to enable the designer to visualize on paper the location of the subscribers and potential subscribers and select the most logical feed route, also to permit an estimate of the number of cable pairs to be provided over the feed routes selected.

In addition to the house count information, the points at which toll and rural lines enter town should be shown indicating the number of subscribers and lines served on these routes.

The Fundamental Feed Plan

THE second step in our study is to draw up a **fundamental feed map.** A **fundamental feed map** is merely a map showing feed routes to serve all the business that might originate in a given area.

This map is prepared by drawing in on the house count map base lines which originate at the central office and which extend out along main feeder routes and to which are connected the block distribution feeds. In compiling a fundamental plan map the choice of several possible feed arrangements rests with the person preparing the map and whether or not the "fundamental plan" is a good one will depend upon the judgment of the designer.

In general, the routes selected should be governed by economy, feasibility, and the possibility of an office move shifting the wire center.

Fundamental plans are not difficult to prepare and are very useful in considering new plant extensions. Their specific purpose is to assure that the periodic plant extensions which are made will all coordinate and so that the plant will continue to expand along definite, well balanced lines.

The writer has seen many plants which were virtually built in circles due primarily to the lack of a good fundamental plan.

A fundamental plan is a sort of framework upon which is placed from time to time a portion of cable or open wire plant and which when covered results in a logical and well formulated telephone plant, even though arrived at by a series of plant extensions.

The use of "fundamental feed plan" is almost a necessity in large cities as here the size of the areas prevents any individual from visualizing the ultimate results of a series of plant extensions unless a fundamental feed plan is used as a guide.

The fact that the large operating companies utilize "fundamental feed plans" in both their large and small exchanges is evidence of their value.

The Terminal Line Count

AFTER the fundamental plan is prepared the next step is to obtain a **terminal line count.** A terminal line count is merely a count of the number of working lines in a terminal. This information is obtained from the cable record. In counting the number of lines working in a terminal, party lines which work out of different terminals and yet are on the same cable pair (due to a multiple between terminals) should count as one line.

The number of lines in each cable terminal is recorded on the cable map near the terminal to which it applies. (See Figure 1). After this is done then the total load working in the different cables is summarized by starting at the

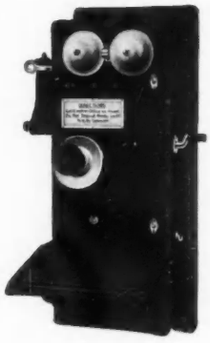
Edward F. Ferguson Joins Signal Corps

First Lieutenant Edward F. Ferguson, chief engineer and general manager of the Gustav Hirsch Organization, Columbus, Ohio, has entered the service of the U. S. Army Signal Corps. With his training and experience in communication and power matters, he will be an extremely valuable member of the Signal Corps for at least the duration of the war.

Lieut. Ferguson is a graduate of Ohio State University and holds the degree of B.E.E., M. Sc. and E.E. He was assistant instructor in the Department of Electric Engineering from 1923 to 1925 when he entered the employ of the Gustav Hirsch Organization as field engineer.

Milton Staub is now general manager of the Hirsch Organization.

THIS (OR) THIS (OR) THIS



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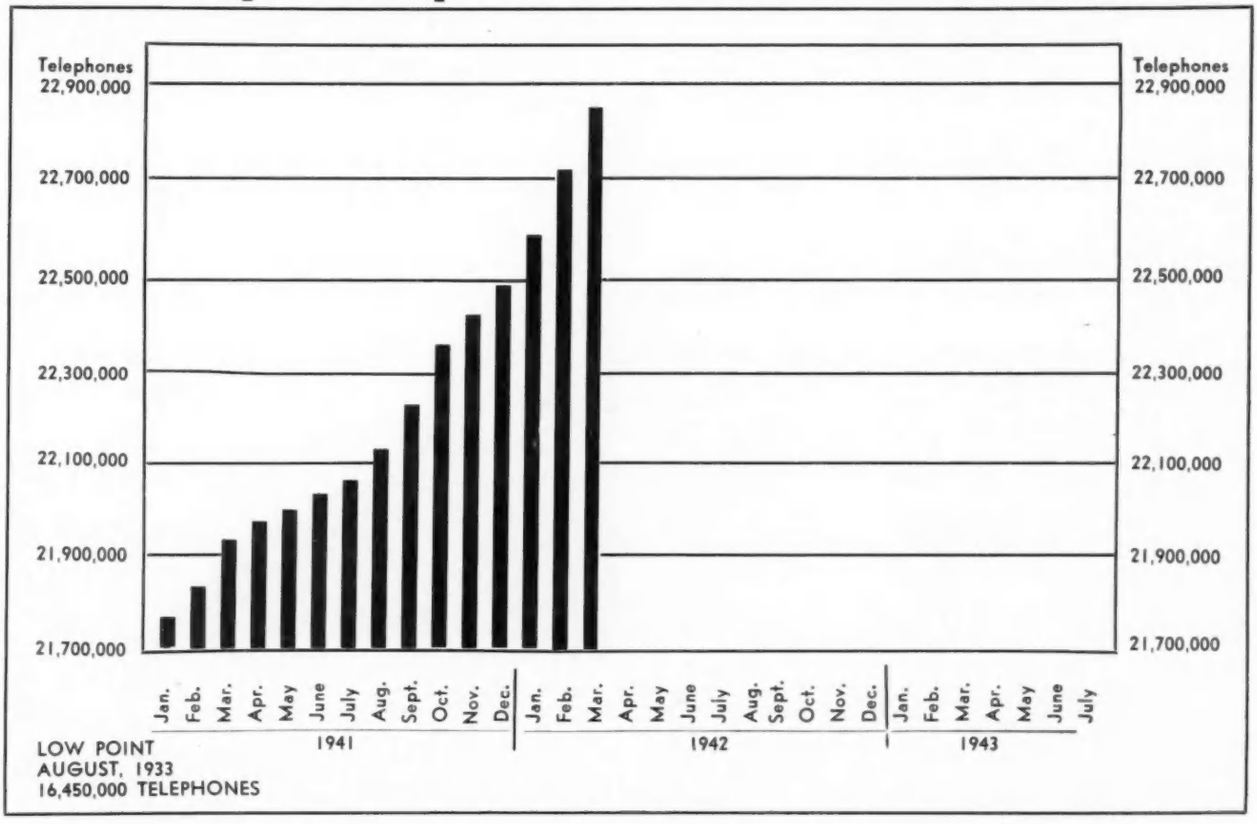
Monthly Telephone Station Barometer



end terminals and adding up the load toward the office.

The purpose of the terminal line count is to enable a study of the number of working lines in any cable and thus determine cables that are approaching maximum fill. Merely inspecting the cable record will not readily disclose this information because of the multiple which might tend to make a cable appear congested when the congestion is due merely to a "tight multiple."

In order to have an index by which to judge cable fills that will soon need relief, the large operating companies indicate the number of working lines in a cable, as a percentage of the total pairs in the cable. That is, if a 100 pr. cable has 80 working lines, then its **percentage of fill** would be 80/100 or 80%.

They have found that the smaller distributing cables should be considered for either reinforcement or replacement when they have reached a fill of about 85% in an area subject to further growth. The larger feeder cables, especially when cross connecting boxes are used, are generally allowed to obtain a fill of 90% before they are considered ready for replacement. Conditions in the average small town are radically different than in the city. In many small towns growth is at a standstill and in many cases the population is decreasing rather than increasing. Therefore it is not a good policy, to set up fixed percentage cable fills which when reached should demand immediate relief measures. In general, however, cables in the small non-growing exchanges that are 95% filled should be studied and relief plans prepared, as even though no increased service demands are anticipated, it is necessary to provide spare pairs to replace those lost from various causes.

The percentage fill of the various cables is therefore the determining factor when considering cable replacements.

If an inspection of the terminal loads indicate cables which are congested and further service demands are anticipated in the area fed by the congested cable, then the manner of relieving the congested cable must be considered.

Provision for Cable Relief

THERE are three general heads under which the relief of congested cable plant may be considered, viz:

1. Replacement of the congested cable with a larger cable.
2. Reinforcement of the existing cable with a second cable.
3. Relief over a different route by cutting off some of the load from the old to the new route.

The method used will depend entirely upon the local conditions. Generally either replacement or relief over an alternative route are preferable to reinforcement over the same route, especially when dealing with the smaller sized cables.

Use of Cross Connecting Boxes

In addition to the three methods of relief mentioned, there is another possible means of reducing congestion, at least temporarily. This is by the use of cross connecting terminals which are merely "aerial main distributing frames." By their use it is feasible to redistribute the total number of vacant pairs in a feeder cable over the several distributing cables which are connected to the feeder cable.

Cross connecting boxes are available in sizes from 50 to 400 pairs. For the information of those not familiar with these boxes, they are an arrangement of binding post strips to which stub cables are connected. These stub cables are in turn spliced to the distributing and feeder cables so that the distributing cable is connected to one strip of bind posts and the feeder cable to the other.

Any pair in the distributing cable may then be connected to any pair in the feeder cable by means of a small jumper. Cross-connecting terminals are usually housed in large wooden boxes.

Cross-connecting terminals were at one time widely used by the larger companies as a means of placing fuses between aerial and underground plant but they are no longer used for this purpose and are now available without fuses.

Cross-connecting terminals are ordinarily not of much value in the smaller exchanges, mainly because of the comparatively small sizes of distributing cables used. However, the theory of their use should be learned as occasions may arise where a judiciously placed cross-connecting box will delay an expensive cable replacement or reinforcement.

One objection to cross-connecting boxes is the added maintenance costs resulting from the additional jumpers which must be handled or installed and line changes.

Summary

THE design of cable plant must contemplate the future as well as the present.

Block distribution cables should be in general designed for the ultimate while feeder cables for the present and a reasonable growth.

Cable usually represents the largest investment in outside plant.

Economy in the design of cable plant depends upon feeder cable design mainly.

Cable systems are an arrangement of U. G. and aerial feeders and distributing cables with trunk cables between offices.

Cable pair records are an essential in any plant.

Maps may be arranged to show an entire cable system or may be subdivided into small maps showing portions of the total plant.

Cost studies should be made between open wire and cable to determine which is the more economical plant.

(Next Lesson—May 15 issue)

Course Examination No. 13

CABLE CONSTRUCTION — PART 2.

1. **What does the term "cable design" imply?**
2. **What is the purpose of the "house count map?"**
3. **Why is a fundamental feed plan necessary and desirable particularly in the larger exchanges?**
4. **Describe the preparation and use of the TERMINAL LINE COUNT.**
5. **Is a cable which has a fill of 60% ready for replacement?**
6. **State the three general methods by means of which cable relief can be provided.**
7. **What is the purpose of the cross connection box block?**
8. **Should distribution cable be designed for the ultimate or the existing load plus possible growth?**
9. **Can cables be worked to as great a percentage of fill with crossconnecting boxes as without?**
10. **Are crossconnecting terminals as useful in the small exchange as in the large exchanges?**

Extension Being Erected

Contract has been let for the $125,000 three story extension of the Home Tel. & Tel. Company building in Ft. Wayne, Ind.

"Victory Joints" Conserve Tin

(Continued from page 31)

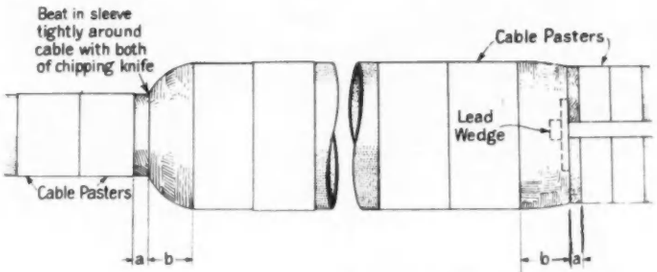


Fig. 3

a Distance of paster from sleeve, ¼ inch for smallest sleeves to ½ inch for largest sleeves.
b Width of point, 1 inch on smallest sleeves to 2⅛ inch on longest sleeves. see table Paragraph.

rine to ensure proper tinning.

The shape of the joint used on the sleeves and the thickness of the solder left on the joint are probably the biggest factors in determining the amount of solder used. In order to make the necessary saving in solder, the joints are wiped thin, with a fillet of solder where the sleeve joins the cable. There should be no mass of solder built up on the lead sleeve.

In wiping the joint, the sleeve and sheath are heated with solder and tinned in the usual way. When the solder runs freely on the entire joint, it should be examined to make sure that the joint is thoroughly tinned. Then the solder is packed firmly at the junction of the sleeve and sheath and in the crotch of branch joints. The joint must be finished quickly using fairly hot solder, since once the shaping of the thin fillet is started, the solder tends to chill rapidly.

In finishing straight joints, the solder is removed from the sleeve by means of a flexible wiping cloth, leaving a fillet of solder at the junction of the sleeve and sheath as illustrated in Figure 4. In finishing branch joints, remove as much solder as practicable from the lead sleeve and trim out the crotch with a piece of textile insulated wire, so that relatively little solder remains.

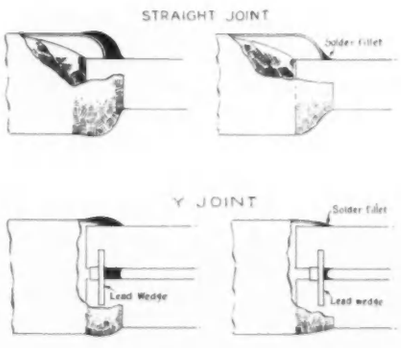
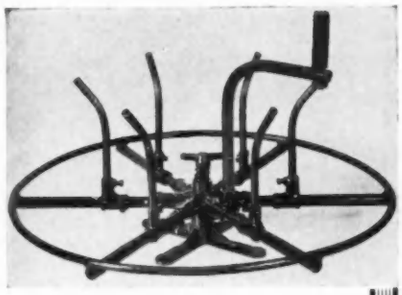


Fig. 4



For Re-Use of Old Line Wire

It's no fun using old wire, but if you must, this six-pronged Ready Takeup and Payout Reel certainly simplifies the mechanical handling of it. It has a wear-compensated cone bearing that keeps it from wobbling, and adjustable tension that saves danger of coils flying out of control. Prongs adjustable for any size coil. Model 4-AT pictured above can be bolted to truck bed—reel can be lifted off spindle if needed—costs only $12.60 complete.

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Highlights of Communication News

(Continued from page 24)

which would broaden the FCC's powers over the construction and extension of lines under Section 214 of the Communications Act. These new provisions amending this Section, as contained in the bill, were as follows:

1. That no carrier shall undertake the construction of a new line or extension or engage in transmission over such additional or extended line and no carrier shall abandon any line or a portion of a line with a FCC certificate of public convenience and necessity. The new language of this Section 214 (a) then set forth the provision that no certificate is required for the construction, acquisition, extension, operation or abandonment of a **line within a single state unless such line constitutes part of an interstate line** (this might be construed to take in a wide field if the Commission concludes circuits, such as it is apparently trying to do in the present carrier system application case now pending before it, are within its jurisdiction); local branch or terminal lines not exceeding ten miles in length; or any line acquired or abandoned under Sections 221 and 222 of the Communications Act.

2. Section 214 (b) was revised in the bill to include notice of any extended, constructed or abandoned facilities be given to duly authorized representatives of employees. This will enable unions to oppose any abandonment of facilities.

3. The FCC shall have the power to issue conditions in connection with certificates of convenience and necessity and if the carrier does not comply the Commission can secure a Federal court injunction. Upon its own motion the FCC can also compel a carrier to provide "adequate facilities" for the public and to establish public offices and the failure of a carrier to fulfill these requirements would make it subject to a fine of $100 each day.

Asks Liberalized Tire Rationing

A number of potent arguments on the imperative need of Independent telephone companies to have a modification of the tire rationing regulations of the Office of Price Administration to permit tires to be purchased by telephone companies for their passenger cars and coupes used in installing, maintaining and operating telephone lines were presented April 7 by Clyde S. Bailey, Washington Vice President of the United States Independent Telephone Association, in a letter to Grenville R. Holden, Chief of the OPA Tire Rationing Division.

The revised Tire Rationing Regulations under which passenger cars used to provide transportation of executives, engineers, technicians and workers from defense facilities and establishments and to provide transportation for the rendering of maintenance and repair services were listed by the OPA as eligible for retreaded and recapped tires, the OPA advised the USITA, but Mr. Bailey in his April 7 statement cited that these revised regulations do not meet the needs of the Independent industry because the recapped or retreaded tires would be available under severely limited conditions. Quoting from letters of several Independents, including the Southern Continental Co. and the Del Rio and Winter Garden Telephone Co. of Texas, both having passenger repair cars and coupes, the USITA Vice President informed the OPA that to deny tires for telephone passenger cars and coupes used in servicing lines would create serious deficiences in telephone service through inability to send repair men or would lead to a deluge of truck orders from telephone companies upon truck rationing authorities. He added that such a deluge of truck orders would lead to a wastage of rubber because the discarded passenger repair cars' tires would not fit the trucks.

The letter to OPA stated that many of the smaller Independents would find it difficult to invest in trucks because their rates are fixed and they are also facing increasing taxes. He added that the operations of many small telephone companies are not extensive enough to afford the use of trucks.

The USITA statement refuted any fear that passenger repair cars or coupes would be used for personal purposes was not well founded. OPA was informed that such instances would be rare and that the USITA would cooperate in preventing any such abuses through publicity to all companies and emphasizing the subject at the thirty odd state Independent telephone conventions. Mr. Bailey's letter stressed the importance of telephone companies, citing that the maintenance and repair of telephone service was a function just as important as the transportation of farm produce and physicians' trips, both of the latter classes being made eligible for tires.

Independents Present Tax Views

THE effects of the tremendous prospective burden of the new War Tax bill, now being formulated by Congress, ranging from the general picture of the increased corporation income taxes, the boosted excise levies on telephone local and toll services and the threatened termination of the 30-year-old Bell System pension plan under the Treasury Department's proposals for taxing pension trust funds, were described to the House Ways and Means Committee during mid-April by the telephone industry—Bell System and Independents; management and employees. The House Ways and Means Committee, which formulates the tax bill before it is started on its Congressional journey, was believed to have been greatly impressed by the telephone industry's contentions, particularly in regard to keeping the Bell System pension plan free from taxation.

The views of the Independent telephone industry on the impact of the increased corporation surtax rates, together with the effects of the increased telephone excise levies on subscribers in small cities and towns and rural districts, were given by Harold V. Bozell, president of the General Telephone Corporation, and the members of the Special Tax Committee of the United States Independent Telephone Association, J. F. O'Connell, its chairman and president of the Commonwealth Telephone Co., J. R. Porter, executive vice president of the Carolina Telephone and Telegraph Co., and John H. Agee, vice president and general manager of the Lincoln Telephone and Telegraph Co.

The strong protest of the telephone industry against the Treasury Department's proposal for the taxing of pension trust funds unless such pension plans provided certain standards like vesting of employee rights in the funds, commencing at 40 years of age and 15 years service in the company, and the limitation of the pension payment to a maximum of $7,500 a year, was felt to have persuaded completely the House Committee membership in the rejection of that tax program. The questioning by the House Committee members and their views expressed to the telephone industry witnesses seemed to indicate an overwhelming vote against the Treasury's proposal which had been presented by Randolph Paul, Special Adviser on taxes to Secretary Morgenthau, on the theory of striking at tax evasion use of pension trust funds. It was brought out by Keith S. McHugh, Vice President of the American Telephone and Telegraph Co., that the Bell System pension plan, founded in 1913, was created before any federal income taxes were imposed,

"was never intended to evade taxes, has never been operated to accomplish that result and should not be jeopardized by such measures as may be necessary to correct tax evasion." Several telephone employees condemned the Treasury pension fund tax proposal as indicating a possible effort to drive out of existence private pension plans so the Federal Social Security program would reign entirely supreme.

If the Bell System pension trust funds and contributions by the companies are to be taxed under the Treasury plan, A. T. & T. Vice President McHugh struck home to the Congressional body that "it would be impossible to continue the plan under present conditions." He described the Bell System pension plan's coverage of about 380,000 people who with their families would amount to around a million people in every section of the country. The termination of the plan would affect most adversely the employees, the companies and the public and would mean that the employees and their families would have to make complete readjustments of plans for the latter years of their lives. Mr. McHugh told the House Committee that the pension plan provides the Bell System with the means of retiring superannuated employees so that the good of the business can be maintained and to terminate this most effective tool in meeting the superannuation problem would mean the public would get poorer telephone service.

In a brief reference to the general tax program, now before Congress, Mr. McHugh stated that the Treasury's proposals for very substantial increases in corporate taxes "will, if enacted into law, reduce earnings on A. T. & T. stock by more than $4 a share and lower earnings on investment to the lowest point in the entire history of the business, including the worst year of the recent depression."

Unanimous and extremely strong support for the rejection of the Treasury's plan to tax pension funds came from representatives of the leading independent telephone unions in the Bell System and from the International Brotherhood of Electrical Workers (AFL). Paul E. Griffith, president of the National Federation of Telephone Workers representing 175,000 telephone workers, stated that to destroy the Bell System pension plan at this time would impair the efficiency and morale of the telephone employees at a time of war when telephone communications are vital to the military effort. Their hope for future security and standard of living would be affected adversely by any impairment of the pension plan, he related.

The Bell System employees through their unions can bargain collectively for any revisions of the pension plan, Mr. Griffith stated and was joined in this view by Charles Parson, chairman of the United Telephone Workers of the New York Telephone Co. who appeared also for telephone employees in New Jersey, Pennsylvania, Long Lines and Western Electric, Miss Mary E. McGarrahan, New England Telephone Workers Federation Vice President, and Jeremiah J. Coughlan, President of the International Brotherhood of Telephone Workers of New England. Two IBEW officials, including Miss M. Grace Barry, head of the Boston local, also condemned any tax move which would hurt the Bell System pension plan. The employees universally lauded the A. T. & T. and Bell System for having put into effect the pension plan in 1913 long before any such employee security measure was ever conceived.

The Bell System pension plan is to be the subject, May 6, of governmental inquiry on another front—the FCC—in regard to the additional accrual charges of Bell System companies to operating expenses to arrest the growth of the pension funds' unfunded actuarial reserve. This inquiry has reached the stage of a Commission Proposed Report under which the telephone companies would have to charge these additional pension accruals out of surplus or against income

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instead of **operating expenses** under Account 672 of the Uniform System of Accounts and the Bell System companies, together with all the independent unions of telephone employees, are assailing this position of the FCC.

The Bell companies and telephone independent unions, including the National Federation of Telephone Workers, United Telephone Organizations, New England, New Jersey and Pennsylvania labor organizations, stressed in their exceptions that the FCC Proposed Report was erroneous in its concept that the accruals to meet past unfunded liabilities could not be assessed out of current operating expenses and cited that improvement of the telephone plant and service was always built out of current earnings although the future subscribers would be the beneficiaries. The telephone companies and the unions cited that if Account 672 did not provide for the assessment of these added pension accruals out of operating expenses the provisions of that Accounting classification should be changed to permit this step. The added cost to arrest the unfunded reserve growth would amount to $10,000,000 or more a year for the Bell System which would have to be charged against surplus or income.

The FCC report will endanger the financial security of the 30-year-old pension plan. The oral argument on the issue before the Communications Commission is to be held on May 6 and will attract the attention and interest of the entire telephone industry.

Hotel Charges Probed

WHETHER telephone companies throughout the country will have to compile and file in their telephone rate tariffs the surcharges of hotels, apartment houses and clubs imposed by the latter in addition to the regular telephone rates will in all probability be determined by the "guinea pig" investigation now being conducted by the FCC and District of Columbia Public Utilities Commission in a joint proceeding in connection with the telephone special charges imposed by those establishments in Washington. The FCC and the D.C. Commission are conducting the inquiry with the ostensible purpose of determining their jurisdiction on these telephone surcharges and to ascertain if they can force the telephone companies to include these special hotel-apartments-clubs charges in the regular tariffs, but from the trend of the first hearings on the issue it seems a foregone conclusion that the two regulatory bodies plan to assume jurisdiction.

The American Telephone and Telegraph Co. and Chesapeake and Potomac Telephone Co. emphasized in their evidence to the two Commissions that the hotels etc, imposed their special charges entirely on their own accord to take care of the costs of the operations of their telephone departments and that the telephone companies not only received no revenues whatsoever from these added charges but had no knowledge of these special rates or how they were made up or imposed. During the hearing the presiding commissioners in their examination, especially loquacious D.C. Chairman, Gregory Hankin, tried to build up a close relationship between the telephone company and the hotels. The D.C. Chairman used the example of how the hotel manager had to identify guests to the company for any overseas calls, but his illustration came a cropper when he was informed that this was a regulation of the Censorship Director under an Executive Order of President Roosevelt. The assistance of telephone companies in collecting unpaid telephone charges for hotels from guests in their home communities was a more successful illustration brought out by Mr. Hankin.

There may be a conflict of jurisdictional authority because the Rent Control Act of Congress places telephone service charges under the District of Columbia Rent Administrator and the latter announced he was going to contest the powers of the two Commissions. The hotels, apartment houses and clubs brought out that their telephone departments engaged in many extra duties and services in a secretarial way to aid the guests, tenants and members and that this was a proper basis for the extra telephone charges.

The A. T. & T. presented the theory—which is to be expanded at an Apirl 23 hearing—that under the board-to-board conception of toll service any extra charges of hotels etc. for interstate long distance calls fell in the category of local exchange service and should be under the regulation of state commissions if it is determined the regulatory bodies have power over these telephone charges.

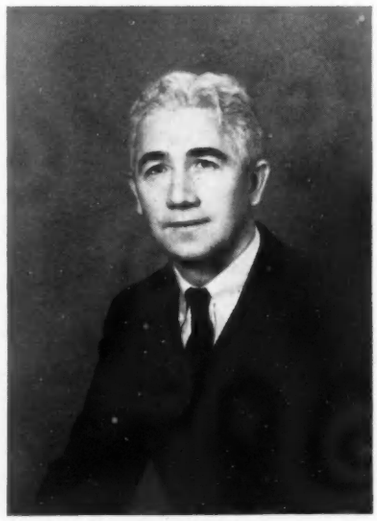
At the same time, the Chesapeake and Potomac Telephone Co. took the opportunity of the proceeding to contest the position of the FCC that it had regulatory jurisdiction over interstate interzone telephone message rates in an extended exchange area like Washington, D.C. The C. & P. has filed such interzone rates "under protest" with the FCC and this issue which had arisen previously in the case of the Kansas City Extended Exchange Area is now before the Federal courts for decision. Assistant Vice President Wilbur Collier of the C. & P. in his testimony brought out to the two commissions the differences in the operations, billing and service of interzone interstate rates and long distance service.

Because of the great variance between the special surcharges placed by the hotels, apartment houses and clubs, the two telephone companies pointed out to the two Commissions the practical difficulties of having tariffs complied by the companies. The commissions were urged to order the imposing of uniform surcharges, probably based on classes of hotels, apartments and clubs in relation to their size, so that the telephone companies would have this task of filing a myriad of tariffs on these special rates. FCC Commissioner Paul A. Walker who presided at the hearings indicated his agreement with this problem. It was believed that the FCC and D.C. Commissions might adjudge the hotels, apartments and clubs as agencies of the telephone companies just as the New York and Wisconsin commissions have done, so that they could assume jurisdiction over the surcharges. If this power is upheld in Washington, the FCC plans to inaugurate a nationwide investigation of surcharges on long distance rates.

Sexton Named Auditor

On March 19, 1942, the Inter-Mountain Directors elected John E. Sexton as General Auditor of the Inter-Mountain Telephone Company.

Mr. Sexton was Manager of the



John E Sexton

Company's fast-growing Kingsport, Tennessee, Exchange for several years and a year ago was appointed General Plant Manager for the Inter-Mountain Company. His wide experience in the telephone field makes him particularly suited for this assignment.

We are sure that Mr. Sexton's many friends will be pleased to hear of his promotion.

All other officers were reelected. They were: Kelley McNish, President; W. G. Griffin, Vice-President; A. E. Reynolds, Secretary-Treasurer; Miss Margaret Owen, Assistant Secretary and Treasurer; and Mrs. E. F. Furse, Assistant General Auditor.

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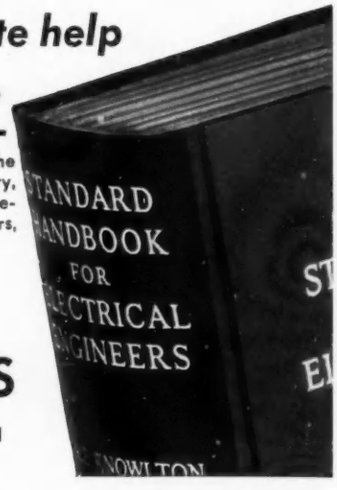
Never before so much practical up-to-the-minute help for electrical engineers in a single volume



Here is the great standard reference work of all in the electrical engineering profession or whose work in industry or engineering touches on this field. Its 2303 pages present a handy-reference compilation of practical, usable data from all fields of electrical engineering practice, plus the most frequently required fundamental theory, units, and systems of measurement, made dependable by the work of more than 100 engineers, scientists, teachers, and other authorities.

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Kentucky Association Has First District Meeting

The district meeting of the Kentucky Independent Telephone Association at Somerset, Ky., March 25, was a distinct success according to a report from J. N. Johnson, president of the Association.

The one day session covered plant, traffic, and commercial activities with the following persons participating in the program.

E. L. Malone, secretary-treasurer, Kentucky Independent Telephone Association, Lexington, Kentucky.

J. N. Johnson, president, Kentucky Independent Telephone Association, Ashland, Kentucky.

A. A. Sharpe, divn. conn. co. repr., Southern Bell Telephone and Telegraph Company, Louisville, Kentucky.

R. M. VanHoose, Lexington Telephone Co., Lexington, Kentucky.

L. H. Oppenneer, plant supt., Southern Continental Telephone Company, Cookeville, Tennessee.

D. H. Loyd, commercial manager, Lexington Telephone Company, Lexington, Kentucky.

Mrs. F. D. Murray, chief operator, Ashland Home Telephone Company, Ashland, Kentucky.

Miss Eula Warner, central office instructor, Lexington Telephone Company, Lexington, Kentucky and W. H. Dysard, Attorney, Ashland, Kentucky.

Mr. Johnson informed TELEPHONE ENGINEER that association officials were so pleased with the first meeting that quarterly meetings would be held in the future in various sections of the state.

Edward W. Kearns

The death of Edward W. Kearns, central district manager for General Cable Corp., on February 17 last, brought an end to a successful, thirty-eight year career in the electrical field in Chicago.

A Terre Haute, Indiana boy, Mr. Kearns had his first business connection with the Monarch Electric & Wire Co. Chicago, in 1904, after an education at the St. Peter and St. Paul Elementary School and the Orrs Business College, in that same city.

He became sales manager of the company, but resigned in 1919 to accept the Chicago district management of the Habirshaw Wire & Cable Corp. In 1927, he joined the Safety Cable Co., later merged with the General Cable Corp.

The fifty-seven-year-old Mr. Kearns was a member of the Knights of Columbus, the Holy Name Society, and the Electric Club. He is survived by Mrs. Kearns, three daughters and a son.

"GRAY PAY STATIONS PAY!"
One company reports that though Pay Stations comprise but 5% of its total stations, they yield 10% of total revenue!
It pays to have Gray Pay Stations working for you.
GRAY PAY STATIONS
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BRANCH WAREHOUSES AT DALLAS, KANSAS CITY, LOS ANGELES, RICHMOND (VA.) AND SAN FRANCISCO

Kirk Thompson Resigns

Kirk Thompson, manager and operator of the Erie (Ill.) Telephone Exchange for more than 40 years has resigned. He was blinded in a hunting accident at the age of 17 and after attending the Illinois School for the Blind was appointed to the position he is now relinquishing.

Mr. Thompson is well known in the industry as a member of the Independent Pioneers and as a regular attendant to every national convention. His keen senses are recognized by his actions in showing visitors over the exchange to the point where many of them could not believe he was totally blind.

Named Assistant Vice President by A.T.&T.

Theodore Berrier, who has been the Washington representative of the American Telephone and Telegraph Co. and Associated Bell System Companies since 1938, was appointed April 1 Assistant Vice President of the American Telephone and Telegraph Co. in Washington.

Mr. Berrier handles the liasion work in Washington between the Government departments and the Bell System on service matters. He has been conducting many important assignments and functions with the Army and Navy in connection with telephone and teletype operations of the Bell System with regard to the war effort and preparedness. He is also the agent of the Bell System companies at the FCC.

Station Gain

There was a gain of about 105,300 telephones in service in the principal telephone subsidiaries of the American Telephone and Telegraph Company included in the Bell System during the month of March, 1942.

The gain for the previous month was 107,300 and for March, 1941, 123,500. The net gain for 3 months this year totals 322,100 as against 371,300 for the same period in 1941. At the end of March this year there were about 19,163,400 telephones in the Bell System.

New Booklet Available On Cable Spinners

Telephone plant men will be interested in the new 12 page booklet just issued by the Cable Spinning Equipment Company of Topeka, Kansas. Complete with illustrations the catalog describes the Neale Model "B" Spinner, Little Giant Slack Pullers, spinning accessories, safety devices, spinning wire and other products manufactured by the company. Copies of the booklet may be obtained by writing TELEPHONE ENGINEER or the Cable Spinning Equipment Co.

INDUSTRY ANSWERS THE CALL!

A WAR MESSAGE
to
ALL EMPLOYERS
★ From the United States Treasury Department ★
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WHAT THE PAY-ROLL SAVINGS PLAN DOES
To get full facts on installing the Pay-Roll Savings Plan, write TODAY to: Pay-Roll Savings Department, Section B, 709 12th Street, NW., Washington, D. C.
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Have YOU Started the Pay-Roll Savings Plan in YOUR Company?

Like a strong, healthy wind, the Pay-Roll Savings Plan is sweeping America! Already more than 32,000 firms, large and small, have adopted the Plan, with a total of over seventeen million employees—and the number is swelling hourly.

***But time is short!*. . More and more billions are needed, and needed fast, to help buy the guns, tanks, planes, and ships America's fighting forces *must* have. The best and quickest way to raise this money is by giving *every* American wage earner a chance to participate in the regular, systematic purchase of Defense Bonds. The Plan provides the one perfect means of sluicing a part of ALL America's income into the Defense Bond channel regularly every pay-day in an ever-rising flood.**

Do *your* part by installing the Pay-Roll Savings Plan *now*. For truly, in this war, this *people's* war, VICTORY BEGINS AT THE PAY WINDOW.

Plan Easy to Install

Like all efficient systems, the Pay-Roll Savings Plan is amazingly easy to install, whether your employees number three or ten thousand.

For full facts and samples of free literature, send the coupon below—today! Or write, Treasury Department, Section C, 709 Twelfth Street NW., Washington, D. C.

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MAKE EVERY PAY-DAY . . . BOND DAY!

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This space is a contribution to NATIONAL DEFENSE by TELEPHONE ENGINEER

GPO 16—26944-1 Form No. DSS-280

Music you love—the w

This month marks the beginning of the third year on the air for "THE TELEPHONE HOUR." The announcements that are broadcast each week provide another means of informing a nation-wide audience about the current problems and activities of the telephone business. They should continue to create public co-operation and understanding for the entire industry.

An advertisement of the Bell

he way you love to hear it

th Bell Telephone System

Spring Construction 1942 A. D.

Eliminate Causes of Service Failure

By JAY G. MITCHELL

Operating Objectives

In many respects the problems confronting the telephone executive this spring are subject to an emphasis which has not been encountered for many years. Plant expansion, in the usual sense, is placed at the foot instead of near the head of the list of seasonal activities. Conditions which now exist and which are all important in prospect dictate the selection of matters for attention. When this principle has been given its maximum application it will be found that the necessary materials are probably obtainable without much difficulty.

The basic object to be kept in mind now, in any telephone system, is the elimination of all possible causes which might bring about service interruptions. Under war conditions it is an axiom that any telephone, any toll line or trunk, any telephone office or, in fact, any element of any telephone plant may suddenly be called upon to assume a role of the greatest importance. When this occurs there should not be any avoidable cause for any possible service failure. The telephone plant, because of its wide ramifications, is one of the first if not the first in importance of all methods of communication. It must be kept tuned to a high point of efficiency in readiness for that all important moment when failure or delay might prove fatal.

Circuit Data

Maps showing existing toll and trunk circuits must be posted up to date. Such maps should show the exact route followed by such circuits, the gauge and kind of wire in each, whether the circuit is loaded or non-loaded for long haul messages, the loop resistance and the location and character of all telephone offices which each circuit enters whether as a test point or for service. While it is true that each operating telephone company should have such a map of its toll facilities it is especially important that such maps be available now. Complete data as to all circuits available may be needed by those responsible for the defense of the country at any time and such information is much more valuable when it includes the capacity in messages per day of each circuit, its electrical characteristics and its immediate or prospective accessibility from intermediate telephone offices. Employees time, which is not restricted, is required for the compiling of such maps and the collection of the other data about such circuits.

Physical Condition

The pole lines carrying toll and trunk circuits should be patrolled with care to the end that pole line conditions likely to cause any interference with service may be identified, located and eliminated by the making of the required repairs or replacements. It may be asked what kind of conditions are to be eliminated. The answer is that slack should be pulled, broken cross arms replaced, rotted poles replaced or reset, guys and anchors adjusted, broken and missing insulators restored, transpositions inspected and line conditions which in normal times might be allowed to remain unrepaired, fully and completely removed. In other words the prime object to be kept in mind is the elimination of any reasonably threatening cause of service interruptions **now without delay.**

While the outside plant is undergoing a tuning up process to render it less subject to service interruptions the staff charged with the care of the Central Office Equipment can, with benefit, remedy all those conditions which have been tolerated on suffrance because normal operations did not seem to permit of time being taken to rectify them.

The Main Distributing Frame (and the Intermediate Distributing Frame when there is one) should be inspected inch by inch. Dead jumper wire should be withdrawn and loose and imperfect soldered connections resoldered. The basic condition which is sought is the elimination of all conditions in the plant, outside or inside, which might conceivably result in a service inter-

BARTLETT
LINE CLEARING
SAWS

Bartlett offers quality saws for immediate delivery on A-10 priorities.

No. 12 — PARAGON SAW. This curved blade, double cut pruning saw is ideal for all-around pruning. Best quality saw steel. Easy grip handle. 22 in. to 26 in.

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No. 1218 — 21 in. Special Utility Saw. Big, husky straddled teeth make this the fastest cutting saw we have ever offered, yet cuts are smooth and the operator finds it easy to use and easy to recondition.

Ask for your free copy of catalog showing complete line of Pole Pruners, Pole Saws, Wire-Cutters, and Safety Equipment for Tree Trimmers.

BARTLETT MFG. CO.
3052 E. GRAND BLVD.
DETROIT, MICHIGAN

25 YEARS AGO THIS MONTH

Taken from TELEPHONE ENGINEER files of April, 1917

THE April issue of TELEPHONE ENGINEER in 1917 carried the story of the cut-over of the automatic equipment installed by the Indianapolis (Ind.) Telephone Company. This cut-over was acclaimed one of the most successful undertakings of its kind that had been performed up to that time. Nine months were required to produce this change from the date of the initial order until the cut-over. The investment in the equipment exceeded $1,000,000. William Fortune was President of the Indianapolis Telephone Company, and the installation was under the general supervision of E. L. Cline, general manager.

Warning was issued to users of magnet wire in TELEPHONE ENGINEER'S April 1917 issue, because the 1916 production, although greater than that of any previous year, had not been sufficient to meet the demand. So serious was this lack thought to be that some central stations were reported to have sent notices to power customers urging that great care be taken with motors. Inquiry showed that a part of the difficulty lay in the insufficient supply of copper.

TELEPHONE ENGINEER in April 1917 reported the award of the Civic Forum Medal of Honor to Alexander Graham Bell at Carnegie Hall, New York. This medal had been conferred only twice before this time, and may only be given once a year, although every year does not see it conferred. It is intended to express the sentiments of the rank and file of the American people and is conferred by a council of about seventy members representing the whole country geographically.

The successful testing of a new method of field communication occurred at Leon Springs, Texas, with several members of a signal corps, each carrying a mile of telephone wire on his back of such fine texture that the rolls did not weigh more than a few pounds, was reported by TELEPHONE ENGINEER in April 1917. By attaching the units carried by the soldiers, a communication system several miles long could be established where access to the reel wagons then in use would be impossible. The roll of wire was so arranged on the soldier's back that it offered no inconvenience and rough country could be negotiated with ease.

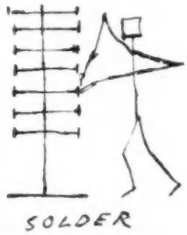
ruption at a critical time. Because of its universal inclusion in many operating circuits the exchange ground must be checked and all ground connections must be verified.

It will be said, of course, that the several things which have been mentioned are things which should be currently done. This is true but a service interruption in normal times is annoying and exasperating but a service interruption during the present time may be **disastrous.**

Materials

The elimination of all possible potential causes of service interruptions in **every** telephone office large or small is easily made a matter of maintenance. As maintenance such operations will undoubtedly be permitted in the sense that the essential materials may be secured by complying with established regulations. To maintain the telephone system in a state of high dependability is not a permissive function of the operating company. It is a patriotic duty. Let no member of the great body of Americans which is responsible for the policies of a telephone system, great or small, entertain the notion that anything less than the best possible communication facilities can be allowed to exist.

In the application of such an effort to the plant the manufacturers and suppliers will be found to be most cooperative and should be consulted whenever it is necessary to secure materials for maintenance. It will undoubtedly be true that established specifications will be abrogated in many cases because of the necessity or possibility of utilizing substitute materials or methods. Such expedients will have to be employed in many contingencies but the basic idea should always be that the interruptions in service which could be tolerated under ordinary circumstances must be anticipated and reduced to reasonly impossible contingencies now.



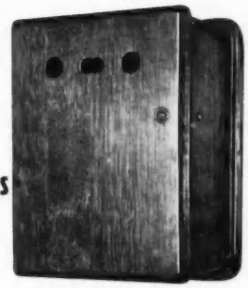
Rate Schedules

In those states where telephone rates and rules are subject to the jurisdiction of a Regulatory Commission the present will be found to be an excellent

Telephone Repair Co.

Specialists in Rebuilding and Repairing Transmitters

REBUILD Your Own Telephones



We furnish New Oak Cabinets for rebuilding Wall Phones or Bell Boxes

Cabinets are equipped with hinges and lock, and, if desired, we can wire them with inside termina's, also short transmitter arms and switchhooks.

Six sizes carried in stock. Any style or size made to order.

DESK STANDS REBUILT—Baked Black Enamel.

TELEPHONES MODERNIZED. New style Wall Phones or Desk Sets rebuilt from parts.

We carry a large stock of Receiver Shells, Mouthpieces and Cords.

New Material in Stock
Square Metal Battery Boxes—Binding Posts—Switchboard & Telephone Cabinets—Stretchem Desk Stand Bottom Rings—Receiver Diaphragms—Air Gap Files—Operators Wire Head Bands.
Also Coil Winding and Enameling of Metal Parts

CASH FOR OLD TELEPHONES

WE BUY
WE TRADE
WE REBUILD

Old telephones or parts into smart modern-looking wall phones or desk sets with new cabinets.

DAN'L H. McNULTY
TELEPHONE REPAIR CO.
Rogers Park Station Chicago, Illinois

time to edit and revise the tariffs on file if, as is often the case, they contain unsatisfactory or indefinite provisions. Since expansion, in the usual sense, is not possible it will be found that the situation as far as the public is concerned will probably not be antagonistic to reasonable revisions of the rate schedules. This is a job for the commercial department whenever time begins to hang heavy on the hands of that important division of the staff.

Finally

Whenever it is essential that the telephone company secure materials which must be secured under priority rating then compile and file your requisition at the earliest possible time. This is because delay is bound to occur and if the material is entitled to a favorable priority rating it is material which is needed to keep the plant in tune and free from possible service interruptions.

Starting Spring Construction

Work has been started by the Fidelity Telephone Company, Sullivan, Mo. on a job of metallizing their 25 miles of grounded lines which have suffered from inductive interference from nearby and paralleling REA lines. Two carloads of poles have already been received and work of rebuilding begun.

Peninsula Telephone Co. Has Annual Meeting

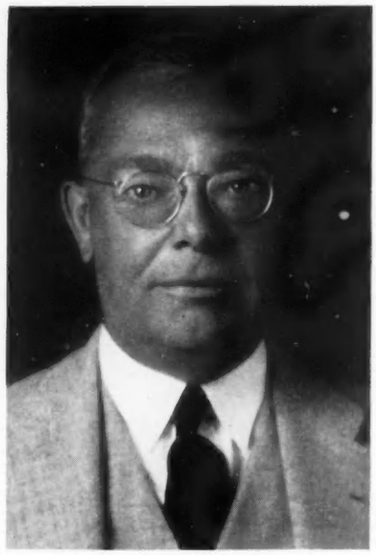
Directors of the Peninsular Telephone Co., Tampa, Fla., at their annual meeting during March reviewed a year in which the available reserve of plant facilities was reduced to a percentage not experienced since the hectic days of Florida's 1925 boom.

They were also advised by Carl D. Brorein, president, that the shortage of critical materials and supplies would bring increasing difficulties in meeting service demands during the coming year.

Mr Brorein's annual report showed that operating revenues increased $282,880, but the increase was largely offset through additional taxes amounting to $204,848 and greater operating expenses. Taxes on each telephone in service amounted to $11.03 in 1941 as compared with $8.33 in 1940 and $3.32 in 1930.

Current assets of the company, which serves most of the West Coast and Polk County, Fla., are valued at $14,563,000. The net income in 1941, after payment of interest and other deductions, was $627,495.

All officers of the company were reelected. They are Mr. Brorein, president; J. A. Griffin, vice president; C. E. Archer, treasurer; J. C. Handly, assistant treasurer; F. D. Jackson, secretary; and C. E. Wilson, assistant secretary.



James W. Bancker

J. W. Bancker Retires

James W. Bancker, director and vice president of the Western Electric Company, retires under the Bell System age rule March 31, bringing to a formal close a career that for very nearly fifty years paralleled the growth of telephone communications in America. Mr. Bancker joined Western Electric in New York in 1892 as a $3.50-a-week office boy.

ABOVE: The specially built T-C trimming machine is shown in action here. Note the whiteness of the pole—note how the machine trims completely leaving no spots.

A "FINISHED" JOB

Every TC POLE Is Smooth, Clean and Shapely!

Taylor-Colquitt goes to great lengths in making a finished job of each pole. Only the soundest, straightest timber is selected. Then each pole is run through a special trimming machine. After trimming, poles are carefully stacked in clean, dry yards for air seasoning and only after thorough seasoning are they impregnated with creosote by the T-C method. But, even THIS is not enough—each pole is INDIVIDUALLY inspected just before shipment.

It's this care and thoroughness that makes T-C poles last longer and cost less per year.

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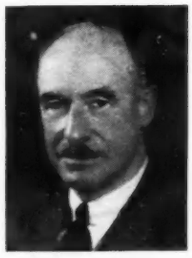
BRANCH WAREHOUSES AT DALLAS, KANSAS CITY, LOS ANGELES, RICHMOND (VA.) AND SAN FRANCISCO

KELLOGG SWITCHBOARD MAKES ANNUAL REPORT

THE Kellogg Switchboard and Supply Company in its Annual Report to Stockholders reported net income, after depreciation and federal incomes taxes, of $564,210.62 for the year 1941. This compares with net earnings of $303,241.24 for the previous year. The Company earned $1.95 per share on its common stock, after paying regular dividends on the preferred stock, as compared with $.95 per share in 1940.

Federal income taxes were equivalent to 53% of the net income before taxes. All taxes amounted to $780,500.00 as compared with $172,000.00 in 1940.



M. K. McGrath, President.

The Company is in a strong financial position with a ratio of current assets to current liabilities of 3.4 to 1.

The Company is one of the principal suppliers of telephones, switchboards, and other communication apparatus to the Independent Telephone Industry and is just completing its forty-fifth year.

James H. Kellogg, Secretary.

During the last year, the Independent Telephone Industry has assumed a new measure of national importance, because it furnishes the telephone service of a large part of the territory outside the big cities and furnishes connection to the national network for most of the isolated and exposed localities, in which are located many army encampments, munitions plants, hydro-electric plants and other industries so important to the defense of the country.

Albert Parlett, Jr., Sales Mgr.

F. M. Parsons, Eastern Mgr.

The rapid growth of independent telephone plants serving such localities, has resulted in a marked increase in all orders from the Company's regular customers. By careful long-term planning, the Company has been able to serve its customers in spite of the difficulties of obtaining many required materials.

R. B. Miles, Western Mgr.

Of still greater importance has been the increasing demand for the Company's products from the Government for the direct use of the armed forces of the Country and its allies. During the year, orders for such purposes increased rapidly, and from now on, will exceed all other demands.

Henry Arth, Pacific Coast Mgr.

As the public telephone service is officially classed as "essential to National Defense," the Company is now devoting practically its whole output, either directly or indirectly, to the Nation's War Effort.

The company was among the first to install a payroll deduction plan to enable employees to purchase Defense bonds on the installment basis. In recent months these efforts have resulted through subscriptions, through the company, of over $100,000.00.

Ray C. Krueger, Advertising Mgr.

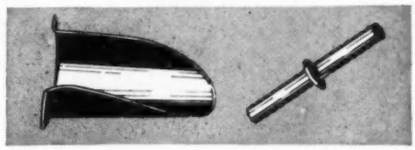
. . . from the COMPLETE LINE OF

OLIVER

POLE LINE MATERIALS

UNDERGROUND MATERIALS

for Manhole and Interior Cable Work

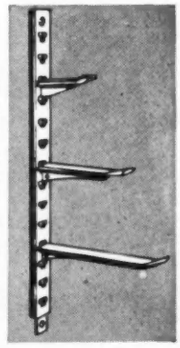


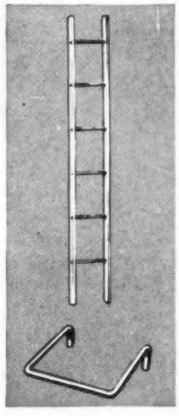
(Left, above) Cable Duct Shields protect lead cable sheaths at duct entrance against wear caused by expanding and contracting.

(Right, above) The Oliver Dowel Pin is used when connecting clay conduit, to keep adjacent lengths in proper alignment.

UNDERGROUND CABLE RACKS . . .

Ideal for manhole and interior cable work. Provide almost any length and arrangement of supports. Hooks are made of mild open hearth steel, hot galvanized, with well rounded corners and broad bearing surfaces to prevent injury to cables. Used with or without insulators.





MANHOLE LADDER AND STEPS . . .

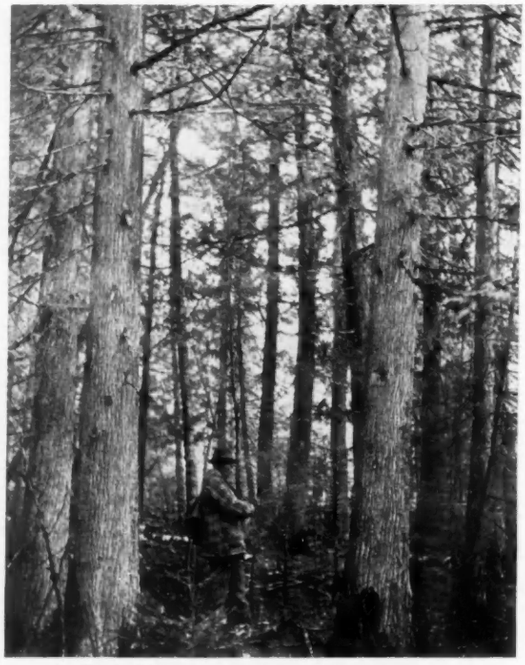
Made in five lengths, 6-1/2, 8, 10, 12 and 14 feet, Oliver Manhole Ladders meet the specifications of large telephone and central station companies. The sides are steel channel sections and the rungs are 5/8 inch diameter, spaced 12 inches. Hot galvanized. Manhole Steps are forged steel, hot galvanized. Suitable for imbedding in either brick or concrete walls.

OLIVER IRON AND STEEL Corporation

Makers of Pole Line Hardware Since 1894

PITTSBURGH, PENNSYLVANIA

WHITE CEDAR POLES *For the Telephone Lines from the Forests of - -*



Typical Stand of Northern Cedar Timber.

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Long Western Poles if you want them. Up to 100 feet.

Also from

Kellogg Switchboard & Supply Co.
CHICAGO, ILLINOIS

Telephone Engineer HANDBOOK TABLES

By B. C. Burden

File—Pole Line
Date—April 1, 1942

Subject: Weight and Shipping Data for Western Red Cedar Poles (ASA Measurements)

General:

The following table and several to follow gives the weight of poles of various lengths and classes, and the number required to fill a railroad car. This type of information is useful when ordering poles or when considering the number that can be carried on a truck or trailer.

Class	Length	Weight	No. for Carload
1	20	700	57
2	20	600	66
3	20	500	80
4	20	400	100
5	20	300	133
6	20	225	177
7	20	200	200
8	20	180	220
9	20	135	290
10	20	100	400

Class	Length	Weight	No. for Carload
1	25	850	47
2	25	720	55
3	25	600	65
4	25	480	83
5	25	400	100
6	25	320	125
7	25	250	160
8	25	225	177
9	25	200	200
10	25	135	296
1	30	1000	40
2	30	850	47
3	30	730	55
4	30	610	65
5	30	500	80
6	30	420	95
7	30	350	114
8	30	325	123
9	30	250	160

Class	Length	Weight	No. for Carload
1	35	1200	33
2	35	1000	40
3	35	850	47
4	35	750	53
5	35	650	61
6	35	560	71
7	35	470	85
8	35	450	90
1	40	1500	26
2	40	1300	31
3	40	1100	36
4	40	900	44
5	40	890	50
6	40	700	57
1	45	1800	27
2	45	1550	32
3	45	1300	38
4	45	1150	43
5	45	1000	50

SANDS

UNPROTECTED CABLE TERMINALS

SANDS unprotected cable terminals give excellent service over an unusually long period of years, due to their strong, rugged construction. They are easy to mount, because the mounting bracket is detachable and can be installed first and the terminal then hung on to it.

Each terminal post is set in a raised boss to increase creepage distance, this being further lengthened by the use of oversize insulating washers under the terminal nuts. The entire terminal is reversible, so the cable can be run from the top or the bottom —the sliding cover fitting either end.

Features like these have made SANDS terminals first choice among a growing number of users.

Distributors in U. S. and Possessions:
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AUTOMATIC ELECTRIC

TELEPHONE, SIGNALING, AND COMMUNICATION APPARATUS

Brings Dial Service to East Brady, Pennsylvania

The New Brady, Pennsylvania, Exchange Building.

THE East Brady exchange of the Kittanning Telephone Co., Kittanning, Pennsylvania, recently cut over its magneto switchboard to a Stromberg-Carlson Relaydial switchboard. Initial equipment consists of 150 lines, 15 links, four trunks to near-by Kittanning and one to Rimersburg, another neighboring town.

Named after the famous Indian scout, Capt. Samuel Brady, East Brady is a town located in the iron-producing territory of Pennsylvania about 70 miles from the mouth of the Allegheny River. The Saga of this locality centers around Captain Samuel Brady, a famous scout and Indian fighter, after whom East Brady, and Brady's Bend Township is named. In 1782, Brady pursued a band of Indians who had committed a massacre in Westmoreland County and carried off a number of prisoners (at that date, Westmoreland County covered a large part of southwestern Pennsylvania). Their camp was discovered; and after nightfall, Brady, disguised as an Indian, entered the camp, and the Indians, completely deceived, gave him full particulars of the raid, the location of the prisoners and other details. After returning to his own camp, Brady and his party forded the river, surrounded, and killed the Indians and rescued the prisoners. In revenge for the massacre of his father, Captain John Brady, and his brother, James Brady, the relentless Captain Sam, singled out the leader of the Indians, Chief Bald Eagle, and killed him.

Another legend is, that, to escape a band of pursuing Indians, Brady leaped from the top of the cliff on the west side of the river. If this is true, it was a mighty leap.

The first telephone company there was the Central Allegheny Valley Telephone Company which was organized in 1904. It was sold to the Bell Telephone Company of Pennsylvania in 1913, who, in turn, sold the property to the Kittanning Telephone Company in 1925.

The new Relaydial switchboard at East Brady serves approximately 276 stations and provides the community with the most modern dial-operated telephone service available today.

The equipment is arranged to provide 10 party full selective service and unlimited reverting calls. A faulty line is automatically locked out until cleared. Traffic meters are provided to record both

K. B. Schotte, Jr., ass't to the general manager, Kittanning Telephone Co.

★ ★ ★ ★ ★ ★

NATIONAL DEFENSE

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has

PRIORITY

While "all-out" National Defense co-operation is taxing our production facilities — We are proud we have been able to continue to make satisfactory deliveries to our government and to our customers in the telephone field.

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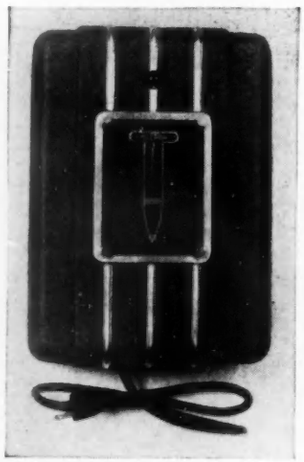
Reliable ringing service is essential in providing satisfactory telephone service.



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daily traffic and overflow. Equipment is provided for indicating to the subscribers that a line has been discontinued or that the number has been changed. This is accomplished by running a single jumper at the main frame between the changed line and intercepting equipment. Alarm sending and checking circuits are also provided between Kittanning and East Brady.

Any line in the system has access to all the connector links. The links provide automatic ringing and reverting ringing tone to the calling subscriber. Conversation time limit is optional and all equipment remains idle when not required to perform their various functions. Lines with partial shorts or leaks, within the limits of adjustments, are automatically locked out, releasing the connecting equipment. This is a valuable feature in RELAYDIAL systems.

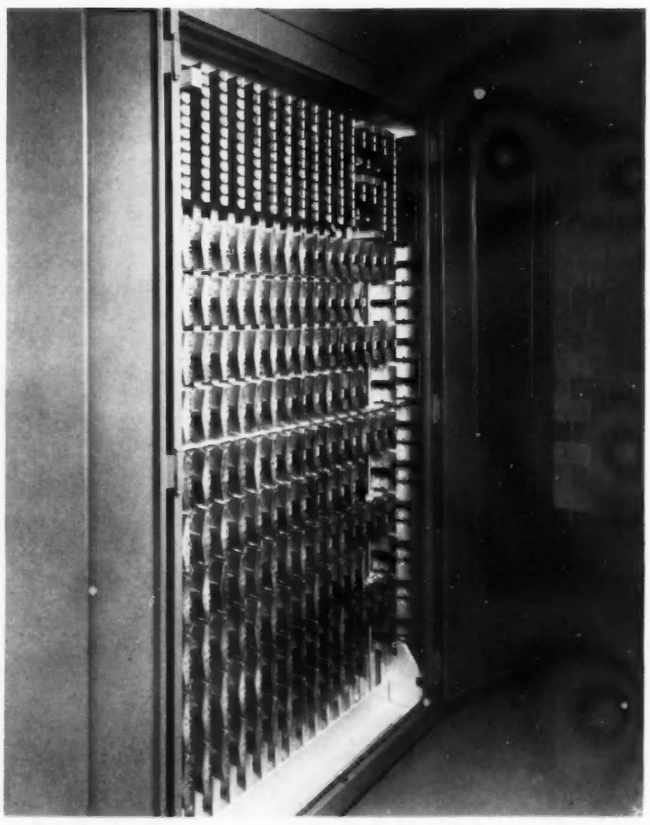
Test Jacks with busy lamps are associated with each connector circuit. Plugging into a test jack on a busy line does not interfere with the operation of that line. Toll checking is available to the Kittanning operators for busy verification on long distance calls. The Dial and busy tones are the oscillating type which provide a pleasing musical tone to the subscribers.

The relay switching equipment is housed in dustproof, steel cabinets with an attractive beige finish. Relays, which are the sole means of switching, are of the No. 500 and No. 700 Stromberg-Carlson type, designed for simplicity and efficiency.

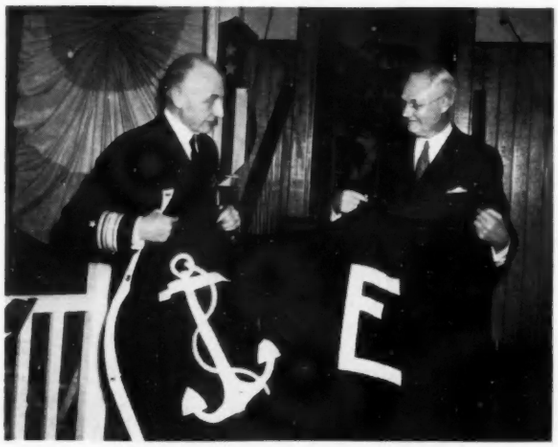
F. D. Young, Wire Chief of the Kittanning Telephone Co.

Mr. K. B. Schotte, Jr., is Assistant to the General Manager and Mr. F. D. Young is Wire Chief. This new equipment is functioning smoothly and subscribers are pleased with their new dial-operated service.

The maintenance of the East Brady Switchboard comes under the direct supervision of Mr. Young, who also maintains several other outlying exchanges of the Kittanning Telephone Co.



Part of the East Brady equipment.



The presentation of the Navy "E" Pennant to the Electric Storage Battery Co., makers of Exide Batteries.

All-Navy "E" Presentation

In colorful ceremonies on Saturday, March 28, 1942, Rear-Admiral W. C. Watts, USN, representing the Secretary of the Navy, presented the coveted All-Navy "E" pennant to Mr. R. C. Norberg, President of The Electric Storage Battery Company, manufacturers of Exide Batteries. This was the first All-Navy "E" Award in Philadelphia. Thousands of enthusiastic Exide workers cheered as the blue burgee was raised, while a color-guard stood at attention.

The ceremonies were conducted by John B. Kennedy, radio commentator. In addition to Admiral Watts and Mr. Norberg, there were addresses by Hon. James J. Davis, Hon. John E. Sheridan, Charles Goff, President, Battery Workers' Union and Lt. Commander Trautman, USN.

New Booth Model

A new half size Burgess Acousti-Booth, "Scout" Model 601, is announced by the Burgess Battery Company, 2825 W. Roscoe St., Chicago. Like other Burgess Acousti-Booths now available, it is constructed entirely of wood in order to save critical materials. This particular model is designed especially for use where noise conditions are mild or where space is limited. It gives telephone users quiet and privacy for telephoning, plus the convenience of use common to all shelf or wall type telephone booths. This Acousti-Booth is suited to a variety of applications, such as in department stores, crowded drug stores, and other places where congestion or limited space prevents the use of a full size booth.

Walls of the Acousti-Booth are lined with a thick sound-absorbent blanket, protected by perforated plywood facing.

Outside dimensions are 28 inches wide by 32 inches high by 26 inches deep. Shipping weight is 65 lbs.

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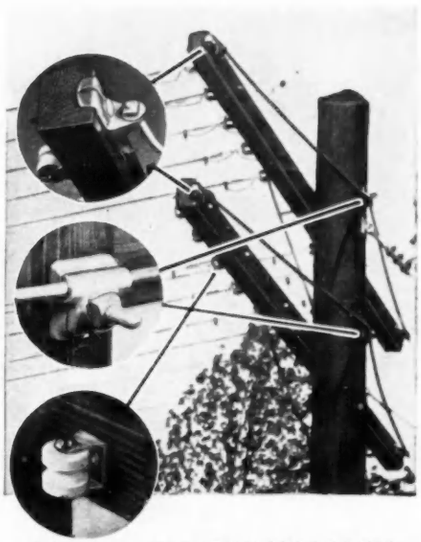

Chance BACK TRUSSES relieve cross arm strain Chance back trusses and terminal brackets put the dead-end load where it belongs and add years to the life of cross arms. Lines dead-ended on pins exert a heavy twisting strain on the arm and in a surprisingly short time the arm has to be replaced. With the Chance back truss method lines are dead-ended on terminal brackets mounted on the face of the arm. The load is evenly distributed and pulls directly against the steel truss. Most of the installation job can be done on the ground.

Once you have used this method you will use nothing else. Write for complete details.

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Finished in both High Polish and Velvet Black.
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Western Elec. No. 323 Transmitters complete with Back & Mouthpiece @	1.25
Kellogg No. 53-103- 67 or No. 37 Condensers with Mtg. Clip attached @	.45
Stromberg Carlson No. 19 Short Trans. Arm @	.50
Kellogg No. 729 S. A. Oak Wood Common battery Hotel sets with Booster Coil and straight line ringers @	6.75
Western Elec. No. 20 C. B. Ind. Coil 35c ea. No. 46 @	.50
Kellogg No. 404 Steel Bell boxes with Booster Coil, Cond. and Straight line or 16-33-50 or 66 cycle harmonic ringers. Wired to work with any 3 Cond. cord desk stand or hand set @	3.00
Stromberg Carlson No. 896 5-bar 1600 ohm Bdg. Compacts @	10.75
Western Elec. No. 1801 P. B. X. Board with 20 lamp lines and 5 cord Ckts. equipped and wired with 2 plug ending trunks @	70.00
Kellogg Drops and jacks any type 5-per strip $8.00—10 per strip @	16.00

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CHICAGO, ILL.

Oliver Iron & Steel Receives "Minute Man Flag"

Pittsburgh, March 26—The Oliver Iron and Steel Corporation, Pittsburgh, Pa., and its employees were presented today with the "Minute Man Flag" by the U. S. Treasury Department for attaining more than 90% subscription to the pay roll deduction plan for purchasing Defense Bonds. A flag raising ceremony held at the main plant entrance in South Side Pittsburgh was attended by nearly 1800 Oliver employees who watched the honorary emblem raised permanently following an address by Oliver's Vice President of Production, Morgan R. Kavanagh.

Dismisses Suit

Western Electric Company, Incorporated has dismissed without prejudice its suit filed on Januray 29, 1942 in the Federal Court for the Southern District of New York against Radio Wire Television Inc. of New York, claiming infringement of several of its patents in the manufacture and sale of amplifiers. The Transformer Corporation of America, who manufactures these amplifiers, has taken a patent license from Western Electric.

Most of the concerns operating in the public address and related fields are licensed to manufacture and sell amplifiers under Western Electric patents. Such licenses, which were previously granted by Electrical Research Products Inc., are now being handled by the Electrical Research Products Division of the Western Electric Company, Incorporated since ERPI has been merged into the Western Electric Company, Incorporated.

Glass Safety Coating

To prevent injury caused by flying pieces of glass broken by vibration, which are always responsible for the largest number of casualties during bombing raids, a transparent protective coating for windows has been developed by Maas & Waldstein Company, makers of industrial finishes, Newark, N. J.

Window glass or plate glass treated with this new coating, which is known as "Glasshield," is in effect turned into safety glass. A coated pane may break as the result of vibration but it does not shatter, according to the manufacturer. It is also stated that the coating does not interefere with vision or light transmission through the glass.

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Call L.D. 16, Telephone Bldg., Dayton, O.

The Clearing House

For the convenience of readers of Telephone Engineer

6000 pennies were turned in for Defense Bonds recently by John Oscar an employee of the Kellogg Switchboard and Supply Company. The pennies represent an education fund started 18 months ago for the Oscar child. Approximate weight of the pennies was 37 pounds.

WANTED to lease, buy on terms, or might accept job in small exchange near an aircraft plant or field in the South. Frank Brady, R.F.D. 2, Huntsville, Alabama.

WANTED — A small magneto switchboard equipped with at least 35 drops. Good workable condition. State make, equipment and price in first letter. Address your reply to Box 8274, TELEPHONE ENGINEER.

RECONDITIONED HARMONIC CONVERTERS

POLE CHANGERS
Kellogg No. 6—17—19

TRANSFORMER SETS
Kellogg 18-A—19-A—21-A

Stromberg-Carlson and Dean
4 Frequency Type
Separate Transformers
Contacts—Parts

Buckeye Telephone & Supply Company
COLUMBUS, OHIO

South Americans Here

Two young communication engineers from Argentina and Chile respectively are the most recent arrivals in New York to claim the educational opportunities granted them through the New York City Committee for Latin American Scholarships. They are Forbes W. Grant of Buenos Aires, Argentina; and Ambrosio Alliende Z. of Santiago, Chile. Both are employees of associated companies of International Telephone and Telegraph Corporation. Grant is a radio engineer with Compania Internacional de Radio Argentina which operates the radiotelephone service between Argentina and the United States and other countries, and Alliende is with the long distance

Forbes W. Grant, Buenos Aires, and Ambrosio Alliende Z. of Santiago, Chile, I. T. & T. employees selected to study in this country.

department of the Chile Telephone Company. Each will take intensive courses of study in New York in his specialized line of communication work and also study United States telephone and radio engineering methods generally by visiting the larger and newer telephone plants and radio stations.

Twenty exceptionally promising young people representing most of the Latin American nations have been selected from more than 400 applicants to study in the United States to help them fulfill in larger measure their contributions to the development of their own countries.

Installs Dial System

The first dial phone system in that section of the state has just been completed by the Mountain View Telephone Company at Mountain View, Ark. Ed Watts, who owns the system took it over a number of years ago. He has rebuilt the lines and installed all modern equipment. The system now carries 130 connections.

A NEW, IMPROVED— UNIQUE SPLICERS FURNACE

Melts 50 Lbs. of Solder in 10 Minutes

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- **FINE FLAME CONTROL**—keeps solder at "just the right temperature."
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Additional Features: Long-life figure "8" generator—with orifice scraper. Rugged semi-steel top plate. Powerful pump. 16 gauge welded steel tank with bottom shock ring. Size 8" x 13". Weight—15 lbs. Popular size for 6", 7", and 8" pots.

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Quality Work Only. Send for Catalog.

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Vacancies are available for men capable of installing central office telephone or similar equipment who are not already engaged in work directly essential to the war effort. Must be free for assignment anywhere. In reply state age, qualifications, past employers, experience, citizenship status, and number of dependents. Address Box 8275, c/o TELEPHONE ENGINEER.

ASK ANY LINEMAN—

with experience—about *Crapo* High-Tensile Line Wire! He'll tell you that it can be handled with the same ease and pulled in with the same facility and by the same methods, as any other telephone line wire.

"In fact," he will add, "you can build more line in a day with *Crapo* High-Tensile Line Wire than with the old wire." Spans, of course, can be much longer; distances between poles greater. That saves time and material; cuts construction costs.

And, when *Crapo* High-Tensile Line Wire is sagged according to carefully prepared tables,* you get a better line—one that will stand up longer, require less maintenance and make for improved service.

Be sure to investigate the outstanding advantages of these two high-strength line wires: *Crapo* HTL-85 for spans up to 225 feet in Heavy Loading Districts; *Crapo* HTL-135 for spans to 350 feet!

Ask your jobber's salesman or write for Bulletins No. 201 and No. 202 containing helpful data and construction practice information!

*Complete stringing sag data mailed on request.

Produced by the Manufacturers of *Crapo* Galvanized Steel Strand. Telephone and Telegraph Wire, Construction Wire, Tie Wire Ground Wire.

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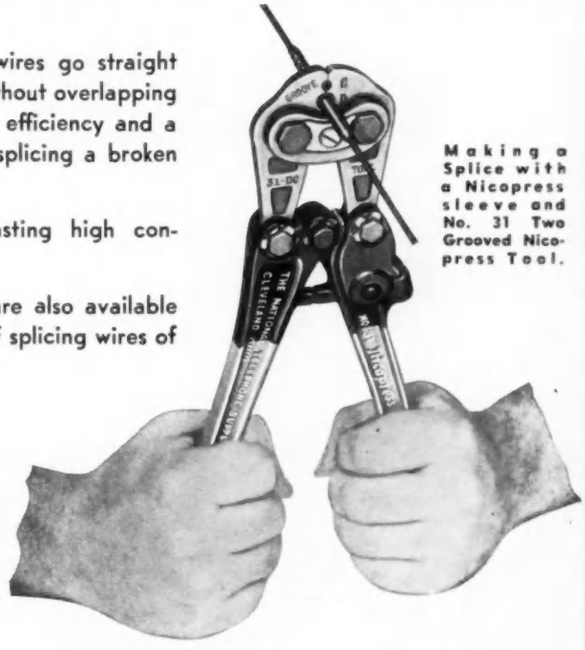
Nicopress Splices are assuring trouble-free line joints on thousands of communication lines, here and abroad.

And the reasons are:—

- Making Nicopress splices, either on the ground or on the poles, is no job at all, its so easy. Any lineman, with a convenient-to-handle Nicopress Tool will quickly form neat, uniform joints.
- Every Nicopress splice has a strength that is greater than the rated breaking strength of the wire.
- In making the Nicopress splice, the wires go straight into the sleeve, meeting end to end, without overlapping or bending. This means an increase in efficiency and a conservation of material and permits splicing a broken line without changing the sag.
- Nicopress splices have a lasting high conductivity.
- Nicopress Reducing Sleeves are also available to provide a simple method of splicing wires of different sizes.

These are some of the many reasons why the Nicopress Compression Method of splicing communication lines assures you of trouble-free line joints at low cost.



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